LEDI 1/S/RK Enhanced

USER MANUAL

GORGY TIMING

NTP SECURED SOLUTIONS

CONTENTS

1 CONTENTS **1**

2 INTRODUCTION **3**

1. QUICK INSTALLATION 4
2. SET-UP YOUR PRODUCT 5
   2.1. Manual network configuration 5
   2.2. Output card configuration 5

3 FULL SETUP **7**

1. NETWORK CONFIGURATION 7
   1.1. Default configuration 7
   1.2. Changing network parameters 8
   1.3. Integration in your network 9
2. OUTPUT CARD CONFIGURATION 10
   2.1. Introduction 10
   2.2. Default configuration 10
   2.3. Change the settings 10

4 FRONT DISPLAY INTERFACE **11**

1. START-UP CONDITIONS 11
2. TIME DISPLAY 12
3. MINOR ALARM CONDITIONS 13
4. MAJOR ALARM CONDITIONS 13

5 WEB INTERFACE **15**

1. PRESENTATION 15
2. DESCRIPTION OF THE WEB INTERFACE 16
   2.1. Main screen 16
   2.2. Standard setup 17
   2.3. SNMP setup 20
   2.4. Output and display setup 22
   2.5. Input setup 27

6 SNMP INTERFACE **30**

1. PRESENTATION 30
   1.1. Software information MIB for the LEDI 1/S/RK Enhanced 31
   1.2. Hardware information MIB for the LEDI 1/S/RK Enhanced 34
   1.3. Description of the SNMP traps 35

7 APPENDIX A – CONNECTIONS 38

1. CONNECTION FOR ALL PRODUCTS 38
   1.1. 230V and 115V AC product (type '0') 38
   1.2. 18/72V DC product (type '9') 38
2. AFNOR NFS87500 / IRIG-B SINE WAVE / TDF / DCF SYNCHRONIZATION INPUT 39
3. AFNOR NFS87500/ IRIG-B DCLS SYNCHRONIZATION INPUT 39
4. GPS SYNCHRONIZATION INPUT 40
5. DUAL AFNOR/IRIG-B NFS87500 OUTPUT ('B' TYPE) 40
6. DUAL AFNOR/IRIG-B NFS87500 DCLS RS422 AND TTL OUTPUT ('T' TYPE) 41
7. RS232 AND 485/422 ASCII+TOP ('A' AND 'R' TYPE) 42
8. TOP / ALARM OUTPUT ('A', 'R' TYPE AND 'G' TYPE) 43
   8.1. Pin-out 43
9. SMPTE OUTPUT ('S' TYPE) 44
10. 4/6 TOPS 1000HZ AND FLAIX 861HZ OUTPUT ('H' TYPE) 44
11. 10MHZ TTL OUTPUT (GPS SYNCHRONIZATION AND OCXO ONLY) 45

8 APPENDIX B – OUTPUT CODE FORMAT 46

1. 'A' AND 'R' TYPE CARDS (ASCII+TOP OUTPUT) 46
2. 'B' AND 'T' TYPE CARDS (AFNOR/IRIG-B NFS87500) 53
   2.1. Frame format 53
   2.2. Bit encoding 54
3. DCF AND TDF TIME CODE DESCRIPTION 55
4. SMPTE MESSAGE DESCRIPTION 56

9 APPENDIX C – TROUBLESHOOTING 58

10 APPENDIX D – MAINTENANCE 62

1. PROCEDURE TO FOLLOW TO CHANGE THE BATTERY 62
2. OUTPUT CARD SWITCHES VERIFICATION 63
3. UPDATING FIRMWARE 64
   3.1. Obtaining Firmware 64
   3.2. Reloading Firmware 64

11 APPENDIX E – DATA 66

1. MEASUREMENTS 66
2. SPECIFICATIONS 66
3. STAMP CONTENTS 67

12 APPENDIX F – ADDITIONAL DOCUMENTS 70

INTRODUCTION

This document is a user's guide for the LEDI 1/S/RK Enhanced. This device can be synchronized either by GPS, either by AFNOR NFS87500, or TDF / DCF radio signal. Optional synchronization outputs are available (alarm, ASCII+TOP, AFNOR NFS87500, IRIG-B, SMPTE, 1000HZ TOPS)

Using the LEDI 1/S/RK Enhanced provides you with several advantages:

- You can use the installed network architecture with the well-known protocols Ethernet+TCP/IP;
- Simplified set-up;
- Easy remote configuration and diagnostic;
- The product is a 19" 1U rack that can be easily installed on your installation;
- It provides configurable synchronization outputs.

By using Gorgy Timing clients in combination with the LEDI 1/S/RK Enhanced you greatly improve the ease of installation and use.

Jump directly to section 1 page 4 for quick installation

1. Quick installation

This part contains the minimum information for the set-up of the LEDI 1/S/RK Enhanced. You can found additional information in part 3.

Check the package content

The package must contains the following items:

❶ The product itself: a 19” 1U rack.

- The name of this product is **LEDI 1/S/RK ENHANCED** which is written on the front side of the rack;
- The code and configuration of the product can be checked on the identification stamp put on top or backside of the product. It must be **9213/*opt*** (where ***opt*** depends on the output cards – see Appendix E – Data - Stamp contents).

❷ A power supply cable (**only for 220V AC and 115V AC versions**);

❸ A network cable;

❹ A CDROM that contains set-up and management tools.

Contact your dealer if one of the items above isn’t in the package

Connect the product

❶ It is highly recommended that you notice the serial number (written on identification stamp), the localization and a short description for the product. The table in You can use the table in *Appendix F – Additional documents*

❷ Connect the synchronization outputs to your equipment (see *Appendix A – Connections* for more information);

❸ Connect the LEDI 1/S/RK Enhanced to your network using the network cable;

❹ Connect the LEDI 1/S/RK Enhanced to a power supply using the power supply cable when it is present.

Your system should work immediately **if there is a DHCP server** on your network. After a few seconds, the LEDI 1/S/RK Enhanced activates its outputs.
However, Gorgy Timing recommends you to fill-in for each product its physical localization. This is possible using the **GTNetMng** tool localized on the CD-ROM. For more information, see part 1.2.

2. Set-up your product

2.1. Manual network configuration

Gorgy Timing Network products are configured in factory to automatically get an IP address. Two mechanisms are used:

1. If a DHCP server is present on your network, our products get an address automatically. This ensures that the IP address is compatible with your network;
2. If no DHCP server is present, the product automatically takes an IP address using the AutoIP mechanism. In this case, the address is in the range 169.254.x.y (where x and y are in the 0..255 range). If both server and client have started in this mode, they should work correctly together but their IP addresses may be incompatible with other devices on the network.[1]

The default DHCP identifier is **LE*nnnnnn*** (***nnnnnn*** is the serial number of the product).[2] You can change this identifier with the **GTNetMng** tool or through the WEB interface as described in part 1.2 and 2.2.

If you don't have a DHCP server or you want to configure yourself the network parameters, use the **GTNetMng** tool on the CDROM to change the network parameter. Please refer to part 1.2 for more information.

☝ **Don't hesitate to contact your network administrator for the configuration of the LEDI 1/S/RK Enhanced. He can help you to optimize your network installation**

2.2. Output card configuration

The default configuration for all the output cards is to deliver UTC time. The time received from the synchronization input is directly sent to the output in UTC format.

Each card can be configured to output several local times. This configuration is done through a WEB browser (see part 2).

[1] For example, you may not have the possibility to configure the LEDI 1/S/RK Enhanced from a WEB navigator.
[2] Some DHCP servers have the ability to copy the DHCP name into the DNS. In this case, you can access the LEDI 1/S/RK Enhanced directly by its DHCP name instead of its IP address.

FULL SETUP

This part contains information for a full configuration of the product. It should be used for fine network configuration and output cards set-up.

1. Network configuration

1.1. Default configuration

The LEDI 1/S/RK Enhanced is configured to automatically take an IP address from a DHCP server. At startup, the product broadcast a DHCP query to get an IP address. This query contains a DHCP name. There are two cases:

- If a DHCP server is installed on the network, it record the DHCP name and return an IP address. The LEDI 1/S/RK Enhanced starts working with this address;
- If no DHCP server is installed, the LEDI 1/S/RK Enhanced automatically use a default IP address in the range 169.254.x.y (where x and y are between 0 and 255).

The default DHCP identifier of the product is **LE*nnnnnn*** with ***nnnnnn***, the serial number on 6 digits. The serial number is written on the identification stamp on the top or on the bottom of the product.

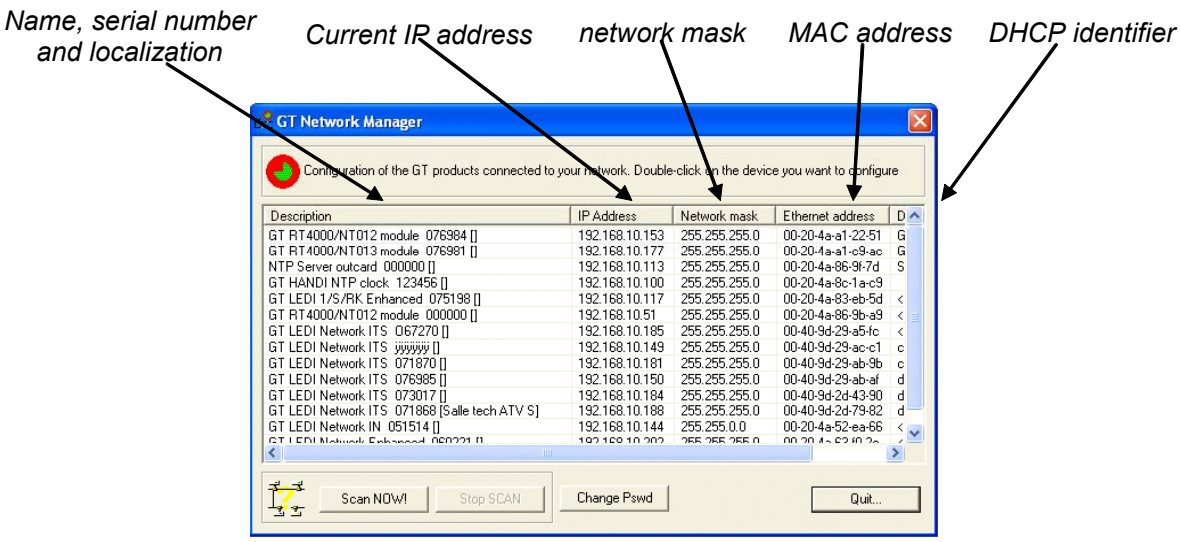
The default SNMP name of the product (that can be seen from a SNMP browser (see part 6) or from a WEB browser) is **LediNetEnh*nnnnnn*** with ***nnnnnn***, the serial number on 6 digits.

1.2. Changing network parameters

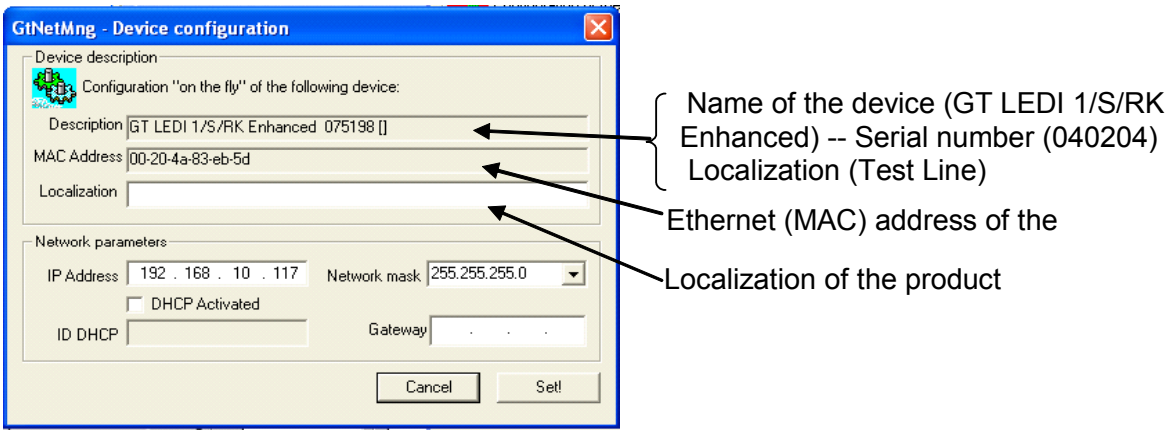
Use the **GTNetMng** tool provided on the CDROM to configure your device:

❶ Insert the CDROM in the drive. Start the **GTNetMng** tool that is localized in the directory **Common\Configuration**[3]

❷ The **GTNetMng** tool displays automatically the Gorgy Timing products installed on your network. Each line contains information about one connected product as shown below:



❸ Double-click on the line related to the product you want to configure. The following panel is displayed:



❹ Set the network parameters and physical localization and click the **Set!** button.

[3] For example, if your CD reader has letter `E:`, the **GTNetMng** tool is localized in **E:\Common\Configuration\GTNetMng.exe**

1.3. Integration in your network

You don't have to change any network setting for the following cases:

- You have a DHCP server and enough reserved IP address for the product;
- You don't have a DHCP server but you don't need to access to the device through its WEB or SNMP interface. In this case, the **AutoIP** mechanism will automatically affect an IP address but this address will probably be incompatible with your network. Anyway if several devices work with **AutoIP**, they could works together.

Some DHCP servers have the capacity to register the device in the DNS. In this case, the registered name is the DHCP identifier. Then, you can access to the device from your WEB or SNMP browser. For example if you give the DHCP name **ntpsrv1** to your LEDI 1/S/RK Enhanced, you can simply type **ntpsrv1** in the address field of your WEB browser.

If you have several products to install on your installation, it is highly recommended to follow the following steps:

- Use the document provided in Appendix F – Additional documents (Summarized installation view) and note the serial number and physical localization of each product during the installation and connection;
- On a PC connected on the same network that the products and start **GTNetMng.** All the GT products should appear with their serial number. Set the network parameter and localization using the document filled at previous step.
- You can keep this document for further reference.

You can found the *summarized installation view* document in a WORD format on the CD-ROM. Its full path is **English\LEDI 1/S/RK Enhanced\docs\installation.doc**.

2. Output card configuration

2.1. Introduction

Your LEDI 1/S/RK Enhanced is provided with up to 4 output cards. Each card acts as a kind of translator that receives time from the synchronization input and generates specific time code.

Currently, there are 7 kinds of cards:

- ASCII+TOP RS232 (**'A'** type card) ;
- ASCII+TOP RS485 (**'R'** type card) ;
- AFNOR NFS 87500 / IRIGB (**'B'** type card) ;
- AFNOR /IRIGB TTL / RS422 (**'T'** type card) ;
- ALARM (**'G'** type card) ;
- SMPTE/EBU (**'S'** type card).
- 4/6 TOPS 1000Hz (**'H'** type card).

You can freely use and copy the table Devices configuration in Appendix F – Additional documents.

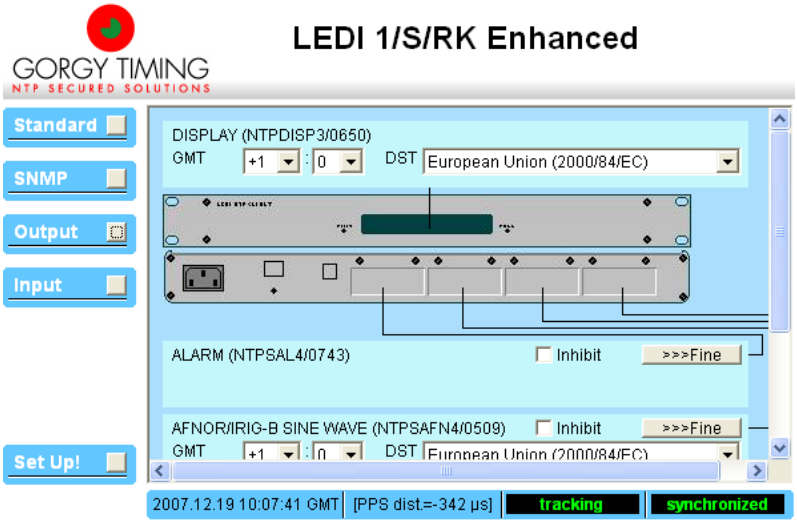
2.2. Default configuration

When you receive this product from Gorgy Timing, all the output cards are configured to output UTC time and time is constant all along the year (no Day Saving Time correction). The display is managed as an output cards and can be configured in the same way.

2.3. Change the settings

Open the WEB site of the LEDI 1/S/RK Enhanced (see part 5). Click on the

button. The current configuration of your product appears at the screen:

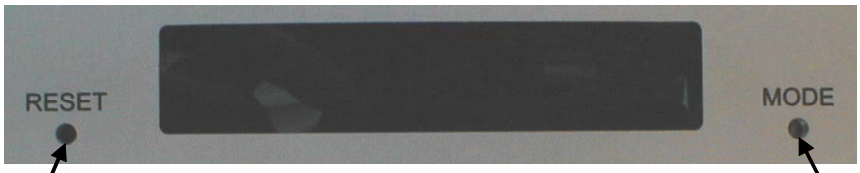


In this screen you can tune each card independently (see page 22). When you have changed the settings, click on the

button. The modification should appear immediately at the outputs or on the display.

FRONT DISPLAY INTERFACE

The front display interface can display up to 16 characters. Two buttons provides you with display configuration and global reset. The LEDI 1/S/RK Enhanced uses the front display to show current time and different alarm condition.



Reset the LEDI 1/S/RK Enhanced

Switch between UTC and LOCAL time display

1. Start-up conditions

During start-up, the time and date of the LEDI 1/S/RK Enhanced are not valid and are not displayed. Then, you can see the following texts:

- When the device start, all the dots of the displays are lightened;

- During hardware initialization, the following text is displayed:

- Then, the IP address of the product appears;

- If there is no time code at the input, the LEDI 1/S/RK Enhanced displays the following message:

2. Time display

When no alarm is present and time code is present at the input of the LEDI 1/S/RK Enhanced, the current time of the server is permanently displayed. The display alternatively shows time and date as shown below:

- When display is configured to show UTC time, the following information are alternatively displayed:

- When display is configured to show local time, the following information are alternatively displayed:

3. Minor alarm conditions

There are two possible minor alarms. These alarms are displayed alternatively with the date:

- When there is no time code at the input and that the LEDI 1/S/RK Enhanced can guarantee enough accuracy on its internal clock, the following text is displayed:

- When the time difference is too important, the LEDI 1/S/RK Enhanced try to rescale its clock and display **Rescaling**.

4. Major alarm conditions

There are two different alarms:

- Without time code and when the LEDI 1/S/RK Enhanced can't guarantee accuracy, it stops deliver time and displays the following text:

WEB INTERFACE

1. Presentation

The LEDI 1/S/RK Enhanced can be configured and supervised through a WEB interface. This interface provides you with the following features:

- Management of network parameters;
- Management of SNMP parameters;
- Management and diagnostic of output cards.

Each LEDI 1/S/RK Enhanced has its own WEB server that delivers WEB pages. The WEB site is a JAVA applet; if needed, you can find a JVM on the CDROM in the directory **Common\JAVA**.

To access the WEB site, type-in the address of the LEDI 1/S/RK Enhanced in the address field of your WEB browser (as shown below) and validate the input.[4]

It takes about 20 seconds to load of the JAVA applet. If the load fails, it can be for one of the following reasons:

1. The IP address is invalid;
2. A network problem[5] prevent your computer to contact the LEDI 1/S/RK Enhanced;
3. You don't have a JVM engine installed on your computer.

For the first two reasons, you have to check for the IP address of the LEDI 1/S/RK Enhanced and your network configuration. For the last reason, you have to install the JVM (see directory **Common\JAVA** on the CDROM).

[4] If you have configured your LEDI Network Enhanced in DHCP mode and that your server automatically register DHCP name in the DNS, you can also use the DHCP name instead of the IP address

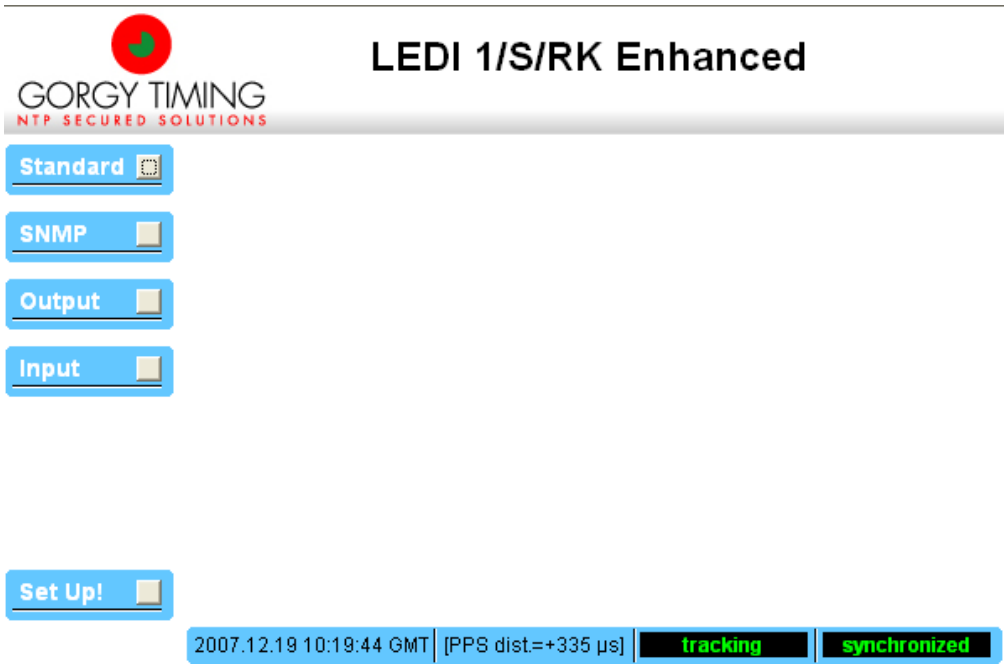
[5] Try to "ping" the LEDI Network Enhanced. If the ping works correctly but you cannot open the WEB site, check especially the configuration of your Internet Explorer.

2. Description of the WEB interface

2.1. Main screen

This is the screen that appears when accessing the WEB site of the LEDI 1/S/RK Enhanced. The first four buttons at the left of the screen provide an access to the following panels:

1. **Standard**: information about the product and configuration of network parameters. See part 2.2;
2. **SNMP**: configuration of SNMP parameters;
3. **Output**: diagnostic and configuration of output cards and display;
4. **Input**: offset from input time code, autonomy and autonomous running mode configuration.

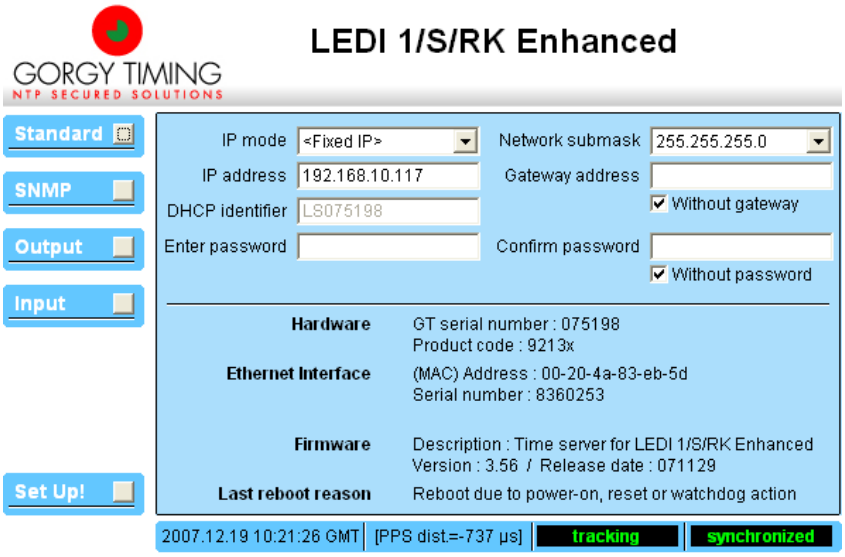


The **Set Up!** button updates immediately the LEDI 1/S/RK Enhanced configuration. The configuration is stored permanently in an EEPROM.

Warning!
Some parameters cannot be modified without restarting the LEDI 1/S/RK Enhanced. If you change these kind of parameters and click on the **Set Up!** button, the LEDI 1/S/RK Enhanced restarts with the new parameters and needs some seconds before re-enable its output and generate time code

2.2. Standard setup

When you click the **Standard** button, the network parameters and product information are displayed as shown below:



In the top of the panel, you can control the network parameters and the WEB access password. In the bottom of the panel, you have information about the product.

Network parameters

Warning!

If you click on the **Set Up!** button after changing one or several network parameter(s), the LEDI 1/S/RK Enhanced must restart to use the network parameters. During the reset and a few seconds after, the output cards are deactivated.

Here are the different parameters:

- **IP mode**
  Indicate if the LEDI 1/S/RK Enhanced works with a fixed IP (set in the field **IP address**) or use DHCP protocol (the DHCP identifier is set in the field **DHCP identifier**);
- **IP address**
  Indicate the network address affected to the device. An IP address is made of four numbers separated by a dot. Each number range from 0 to 255;
- **DHCP identifier**
  Identifier to be used when the LEDI 1/S/RK Enhanced is configured in DHCP mode. This identifier has 8 letters maximum. The default value is **LE*nnnnnn*** (where ***nnnnnn*** is the serial number on 6 digits);

- **Network submask**
  Indicate the width of the network you use. For example, a network submask 255.255.255.0 indicates that only the last number change (in the example above, address in the network can change between 192.168.10.1 to 192.168.10.254)[6];

- **Gateway address**
  If you want the LEDI 1/S/RK Enhanced to communicate with devices outside the local network, you must indicate a gateway;

- **Without gateway**
  Check this box when you don't have a gateway on your network (or don't want to use it);

Product information

Here is a description of the product information area:

- **Hardware ➔** GT serial number
  Display the Gorgy Timing serial number of the product. This is a 6 digits number which is the same than the one stamped on the bottom or background of the rack;

- **Hardware ➔** Product code
  Display the Gorgy Timing base code of the product without option (9213x);

- **Ethernet Interface ➔** (MAC) Address
  Indicate the *Medium Access* address of the Ethernet interface of the LEDI 1/S/RK Enhanced;

- **Ethernet Interface ➔** Adapter Serial number
  Indicate the serial number of the Ethernet interface of the LEDI 1/S/RK Enhanced. This information can be useful for maintenance;

- **Firmware ➔** Description
  Short text that describes which software is running on your product

- **Firmware ➔** Version/Release Date
  Version of the software running in the LEDI 1/S/RK Enhanced and date of the last produced software (in English format yymmdd for example 071129 for 2007, November the 29th);

- **Last reboot reason**
  A text that Indicates why the LEDI 1/S/RK Enhanced has restarted the last time.

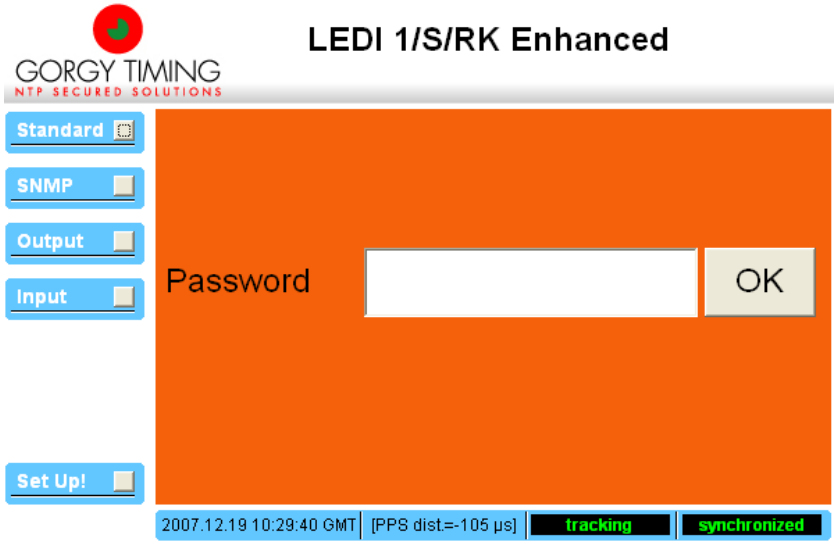
[6] If you configure several devices to communicate on the same network, you must have the same network submask.

WEB site access protection

If you want to protect access to the parameters of the LEDI 1/S/RK Enhanced, you can specify a password. This is done by enter the password twice in the area **Enter password** and **Confirm password** (the same password in the two areas).

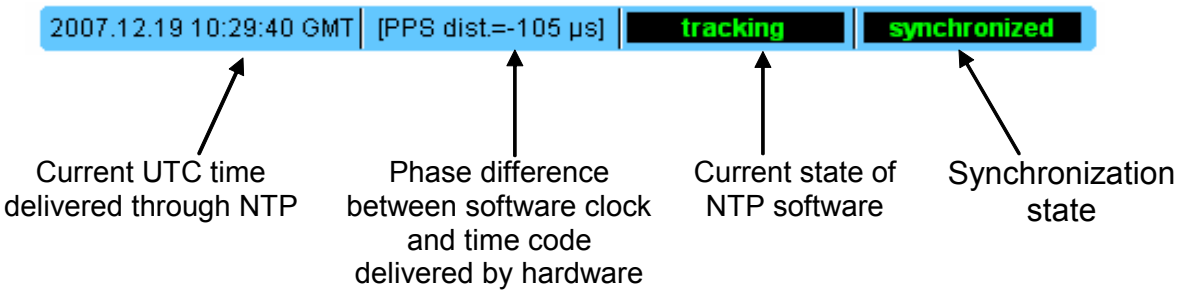
If you don't want to protect the parameters, check the box **Without password**.

When a password is set, it will be asked to the user at the next connection. In this case, the main screen looks like follows:



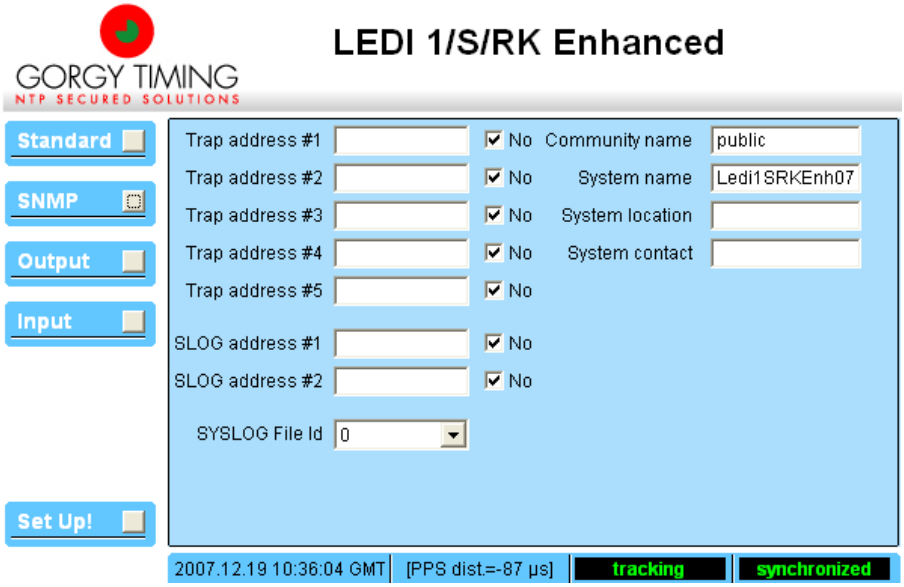
Status bar

The status bar is positioned on bottom of the WEB page. It gives information about the server software. It contains the following information:



2.3. SNMP setup

When you click the **SNMP** button, the SNMP parameters are displayed as shown below:



The very standardized SNMP protocol provides a means to get information and alarms from the LEDI 1/S/RK Enhanced.[7] Access to this information (the MIB) can be "protected" by a keyword that is the **Community Name**.

Alarms are sent to a SNMP browser localized on a computer identified by its IP address. Up to 5 IP **Trap address** can be specified that allows the alarm monitoring from 5 different computers.

Last, the SNMP related name, location and contact can be configured in this screen. This information is stored in the system branch of the MIB and can be displayed in a SNMP browser or in the **GTNetMng** tool (see part 1.2).

For convenience, alarms can be notified through the SYSLOG protocol that is more often implemented under UNIX®.

[7] See part 6 for more information about SNMP

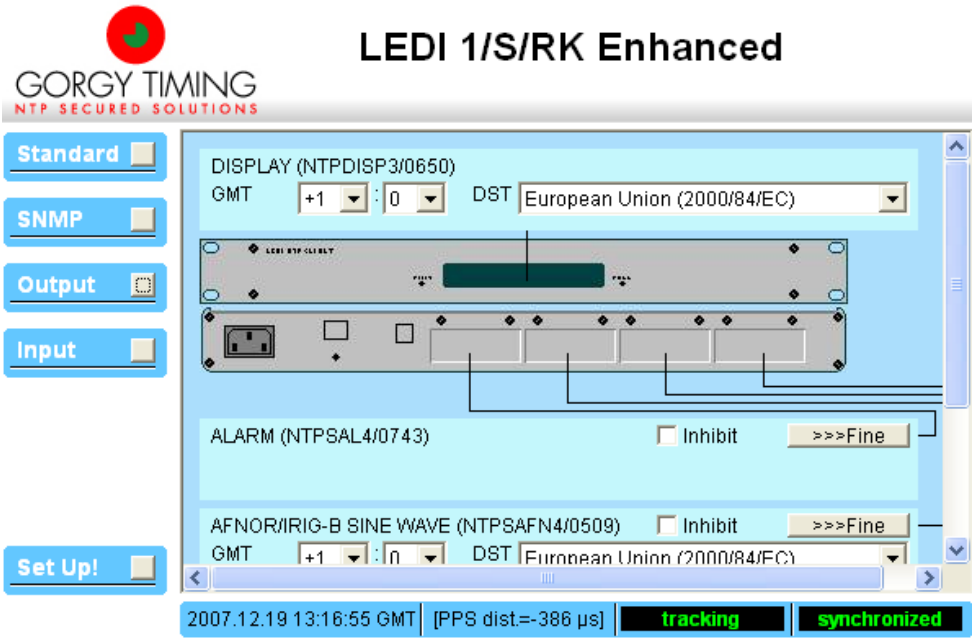
Description

Here is a description of the fields in this panel:

- **Trap address #1..#5**
  Address(es) of the computer(s) to which will be sent the SNMP alarm notification. When you don't use an address, you must check the related **No** box;
- **SYSLOG address #1..#2**
  Address(es) of the computer to which will be sent the SYSLOG alarm notification. When you don't use an address, you must check the related **No** box;
- **SYSLOG File Id**
  Identify the file to use on remote computer for SYSLOG protocol;
- **Community name**
  A simple keyword that is needed in a SNMP browser to access SNMP information. This keyword must have 8 letter at the most;
- **System name**
  A text that you can use to give a name to the LEDI 1/S/RK Enhanced. This name appears in the **sysName** variable of the system branch of the MIB. The initial value is **LediNetEnh*nnnnnn*** (where ***nnnnnn*** is the serial number of the product);
- **System location**
  A text that you can use to indicate the physical localization of the LEDI 1/S/RK Enhanced. This name appears in the **sysLocation** variable of the system branch in the MIB. There is no initial value.
- **System contact**
  A text that you can use to indicate the person to contact for any problem related to this LEDI 1/S/RK Enhanced. This name appears in the **sysContact** variable of the system branch in the MIB. There is no initial value.

2.4. Output and display setup

When you click on the **Output** button, the configuration of the output of the LEDI 1/S/RK Enhanced is displayed as shown below:



This panel shows a synthetic view of the outputs of the product. The display is considered as an output and is driven by a display card. A LEDI 1/S/RK Enhanced can contain up to 4 output cards plus the display card.

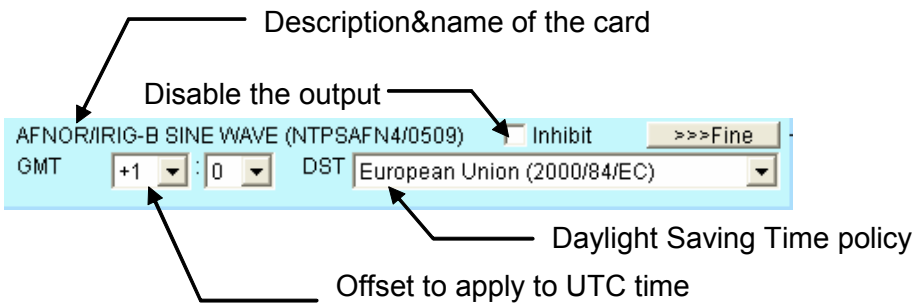
The display and each output cards can be configured independently using the right cyan box. When an output card is not present or in failure, its box doesn't appear.

At this time, there are 7 kinds of output cards:

- ASCII+TOP RS232 (**'A'** type card) ;
- ASCII+TOP RS485 (**'R'** type card) ;
- AFNOR NFS 87500 / IRIG-B (**'B'** type card) ;
- AFNOR / IRIGB TTL / RS422 (**'T'** type card) ;
- ALARM (**'G'** type card) ;
- SMPTE/EBU (**'S'** type card).
- 4/6 TOPS 1000Hz (**'H'** type card).

You can freely use and copy the table Devices configuration in Appendix F – Additional documents.

Standard output configuration



The previous picture shows the configuration panel for an AFNOR/IRIG-B. In addition, the description contains identification and version of the program embedded in the output card (there, it's the program NTPSAFN1, version 0252).

Each output card can be configured independently through the following parameters :

- **Output deactivation**
  Except for the display, all the output cards can be deactivated. The deactivation has the following effects :
  - For ASCII+TOP card, the time frame is not generated and the TOP outputs are in the open state;
  - For AFNOR output, the carrier is not modulated.
  - The ALARM output doesn't generate warning signal.
  - The 1000Hz output is not generated

- **Time Zone**
  The "Time Zone" is a time offset that can be added or subtracted from the time received through the synchronization input (which is converted into UTC time) to generate local time. For example in France, local time is GMT + 1:00.

- **Day Saving Time**
  In addition to the Time Zone, many countries apply a Day Saving Time correction. The year is made of two areas: in summer time, 1 hour more is added to the time (after Time Zone correction), in winter time only the Time zone correction is applied. Don't forget to select the appropriate country in the WEB interface.

Here are the different DST policies :

European Union	**Start:** Last Sunday in March at 1 am UTC **End:** Last Sunday in October at 1 am UTC
USA / Canada / Mexico / St. Johns / Bahamas / Turks / Caicos	**Start:** First Sunday in April **End:** Last Sunday in October
Australia – Standard	**Start:** Last Sunday in October **End:** Last Sunday in March
Russia	**Start:** Last Sunday in March at 2 am local time **End:** Last Sunday in October at 2 am local time

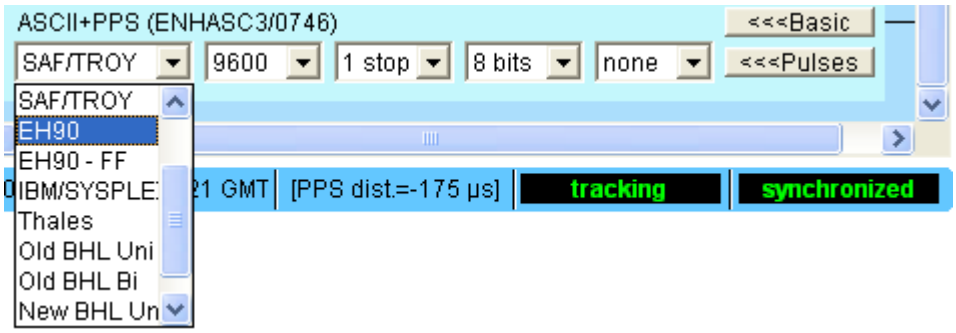
Fine output configuration

Some output cards provide specific configuration:

- **ASCII + PPS fine configuration :**

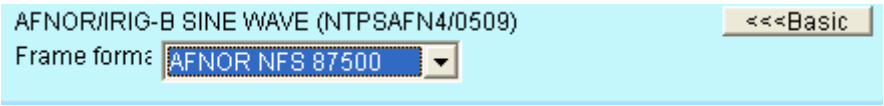
You can configure here the period and the width of the TOP.

- **ASCII protocol and parameters selection :**



Choose your transmission parameters and your protocol type.

- **AFNOR / IRIG-B fine configuration :**



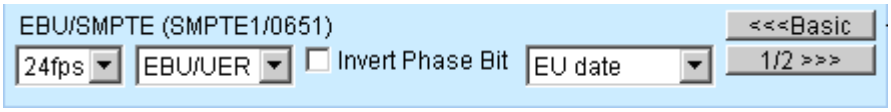
Choose your frame format: Afnor, Irig-B or Irig-B + binary second.

- **ALARM fine configuration :**

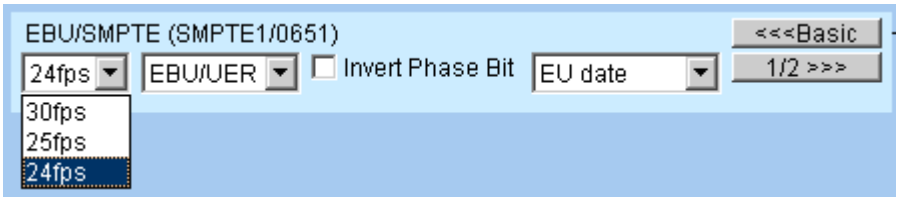
To configure the different alarm signals, choose an alarm type (no alarm, synchronization failure, power failure or synchronization + power failure) then set the period and width of the signal. You must do the same for each alarm type.

- **SMPTE configuration :**

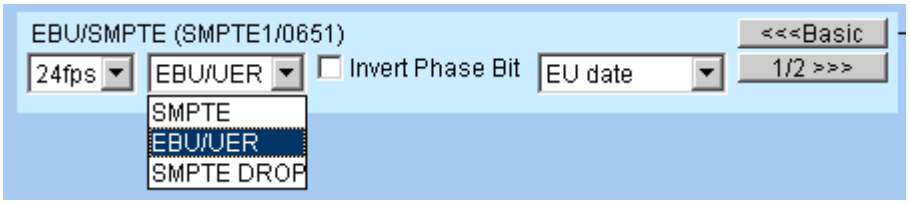
The SMPTE output code format can be configured here:



- Choose your frame speed : 24, 25 or 30 frames per second.

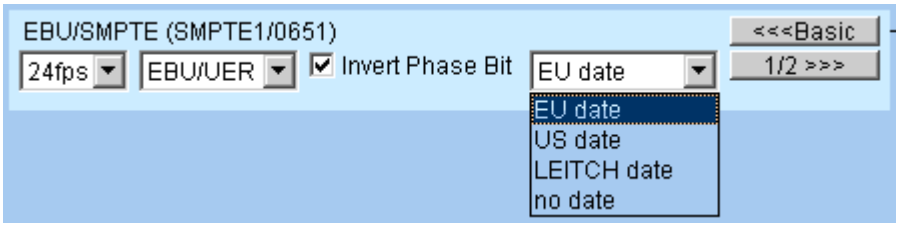


- Choose your code type :



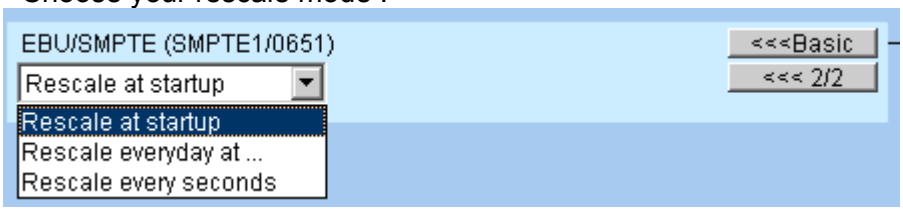
- Select « Invert phase bit » if you want to invert the phase bit.

- Choose your date format :

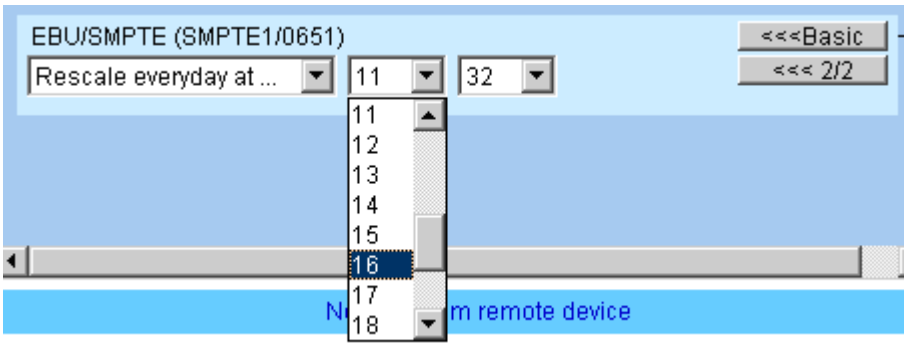


Click on 2/2 in order to access at this following configuration:

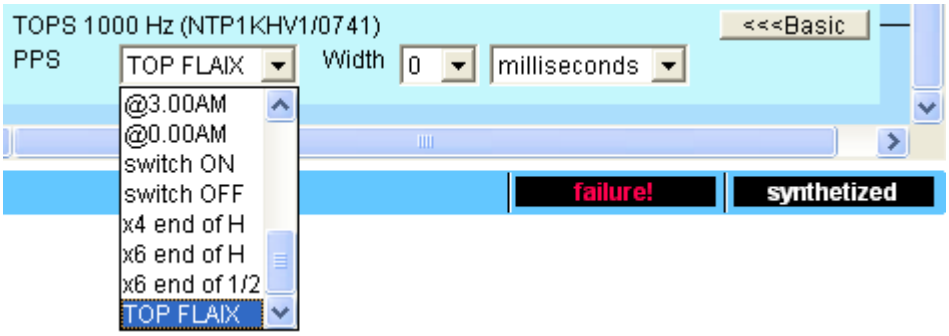
- Choose your rescale mode :



If you select « Rescale everyday at… », you can choose the rescaling hour and minute:



- **1000Hz output configuration :**



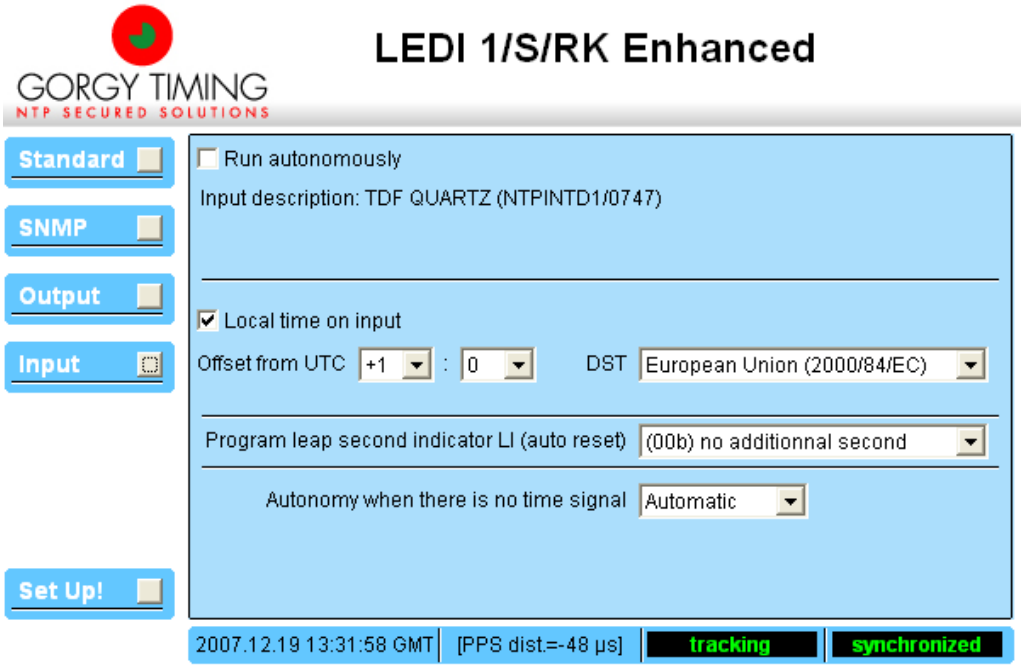
- Choose the type of 1000Hz output
Note: TOP FLAIX are automatically set to 861Hz when selected.

Click on

button to save the modifications.

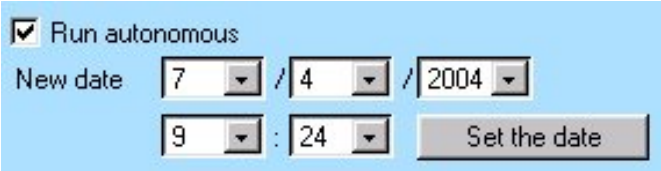
2.5. Input setup

When you click on the **Input** button, the input configuration of the LEDI 1/S/RK Enhanced is displayed as shown below:



- **Run autonomously**

  Check this box if you want that your LEDI 1/S/RK Enhanced works autonomously, independently of the time on input. Then press **"Set Up!" :** the device reboots, and you can set the actual date like shown below. Validate your date by pressing **"Set the date"** :



Note: this mode is useful for synchronization tests, or if you don't have a synchronization source. However, the date is not exact, and the accuracy is not guarantied.

- **Local Time on input**

  In some cases, the device is not synchronized on an UTC time source but on a local time source for example. Then you need to configure the time zone from the Greenwich Mean Time (GMT), and the Day Saving Time policy of the source.

  For example in France, the local time is UTC+1 hour in winter and UTC+2 in summer. Here is the needed configuration:

  Offset from UTC : +1h00
  DST : European Union

  If you use an UTC time source, keep the “Local time on input” checkbox unchecked.

- **Autonomy**

  If the time source is lost, the device can work in autonomous mode. When the autonomy time end is reached, the device stops to provide time on his outputs. You can choose the autonomous duration :

  Automatic : the device computes his autonomy duration automatically, to be sure to provide an accurate time.

  User defined : define yourself the autonomy duration. You can choose an infinite autonomy to avoid synchronization losses in your installation.

Note: don’t forget to press the **“Set Up!”** button after each change you make!

SNMP INTERFACE

1. Presentation

The LEDI 1/S/RK Enhanced provides a SNMP v1 interface for fine monitoring and diagnostic. The SNMP protocol allows the supervision of a device through the network. Two kind of information are available through a SNMP interface:

- A set of variables that can be read. These variables are stored together in a database (MIB) organized in a hierarchical way. The variables are set by the software to reflect its internal states;
- Some traps that can be generated by the software to indicate important state modification.

There is two important parts in the MIB:

- A general-purpose branch named **System**. This branch is MIB II compatible;
- A private branch that contains information specific to the LEDI 1/S/RK Enhanced product.

Private MIBs are described with .MIB files. A .MIB file is provided on the CDROM in the directory **English\LEDI 1/S/RK Enhanced\MIB**:

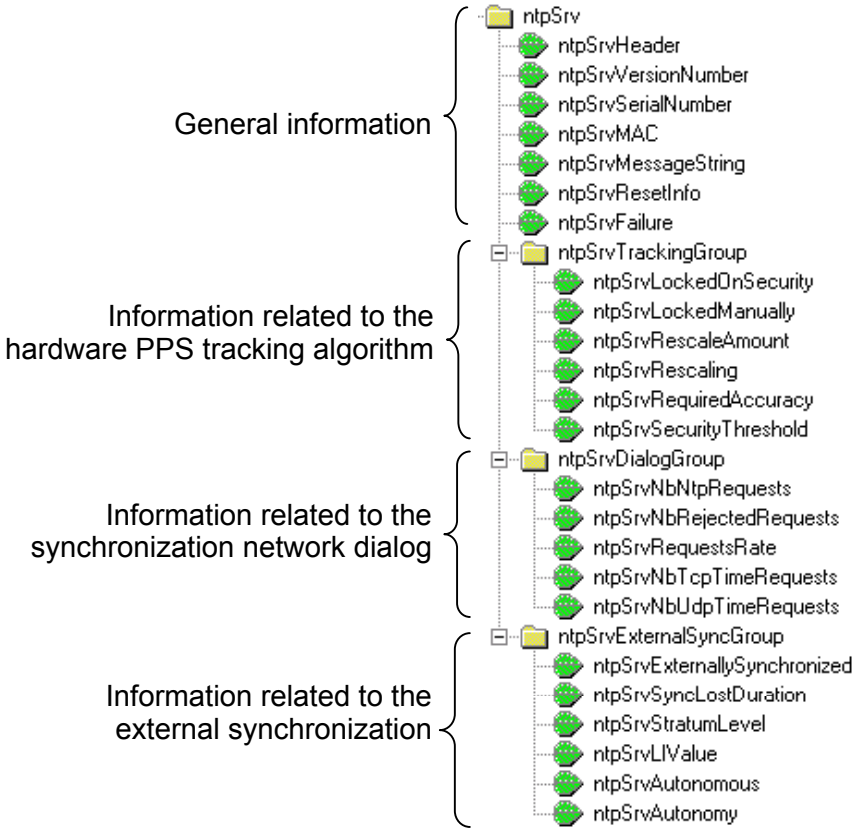
- The file **GtNtpOutBus.mib** contains the description of the information related to the output cards and the display – Localization in the MIB:

  iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).gorgy(8955).hardware(2).ntpOutBus(1)

1.1. Software information MIB for the LEDI 1/S/RK Enhanced

General organization

This branch contains all the information related to the server software itself. Here is the structure of this branch:



General information

ntpSrvHeader
Short description of the LEDI 1/S/RK Enhanced device.

ntpVersionNumber
Version and release date of the NTP server firmware

ntpSrvSerialNumber
Serial number of the Ethernet interface (unique for each device)

ntpSrvMAC
Address of the Ethernet interface (MAC address)

ntpSrvMessageString
A text bound with each generated trap. It contains the text bound to the last generated trap.

ntpSrvResetInfo
A text that gives the reason of the last RESET.

ntpSrvFailure
true(1) if there is no time code and that the NTP output is deactivated
false(0) if the time code is present or the NTP server software can guarantee the accuracy; NTP output is activated

Tracking module information

ntpSrvLockedOnSecurity

true(1) if a time difference too important has been detected between the NTP software clock and the time returned by the hardware ; for security reasons, the NTP server is currently locked

false(0) if no significant time difference has been detected

ntpSrvLockedManually

true(1) if the software has been locked by a user

false(0) if the software is not locked by a user

ntpSrvRescaleAmount

A text that gives the amount of the difference between NTP software clock and hardware time that leads to a security lock

unit: *second*

ntpSrvRescaling

true(1) if the NTP server software is currently rescaling on the hardware. During rescaling stage, the NTP server don't reply to clients

false(0) if no rescaling in progress

ntpSrvRequiredAccuracy

A text that gives the required accuracy for this NTP software (related to the time provided by the hardware)

unit: *seconds*

LEDI 1/S/RK Enhanced: *this accuracy is fixed to 0.24414 ms (4096^{-1} s)*

ntpSrvSecurityThreshold

A text that gives the maximum accepted difference between software clock and hardware time before locking the server

unit: *seconds*

LEDI 1/S/RK Enhanced: *this value is initialised to 65535.0 seconds*

Network dialog information&statistics

ntpSrvNbNtpRequests

Total number of received NTP requests (in fact all the requests received on port 123). When this counter reaches 32767, it reloops to 0.

ntpSrvNbRjectedRequests

Number of rejected NTP requests. A request can be rejected if it bad-formed, encryption is invalid or the NTP server is locked. When this counter reaches 32767, it reloops to 0.

ntpSrvRequestsRate

Shows an approximation of the average number of requests per seconds.

ntpSrvNbTcpTimeRequests

Total number of received TCP Time requests. When this counter reaches 32767, it reloops to 0.

ntpSrvNbUdpTimeRequests

Total number of received UDP Time requests. When this counter reaches 32767, it reloops to 0.

External synchronization information

It gives information on an external time reference used by the hardware (for example an antenna).

ntpSrvExternallySynchronized

notapplicable(2) if there is no information on external time reference
true(1) if the hardware is correctly synchronized on its external time reference
false(0) if the hardware is not synchronized on its external time reference (out of radio coverture?)

ntpSrvSyncLostDuration

Number of seconds since beginning of synchronisation lose or duration of last synchronisation lose

ntpSrvStratumLevel

Current stratum level. This is the value returned to the NTP client.
This value can change when the synchronisation is lost depending on the policy defined in the setup.
Moreover, the default value can be changed through the setup.

ntpSrvLIValue

Current LI value. This is the value returned to the NTP client.
This value can change when the synchronisation is lost depending on the policy defined in the setup.

ntpSrvAutonomous

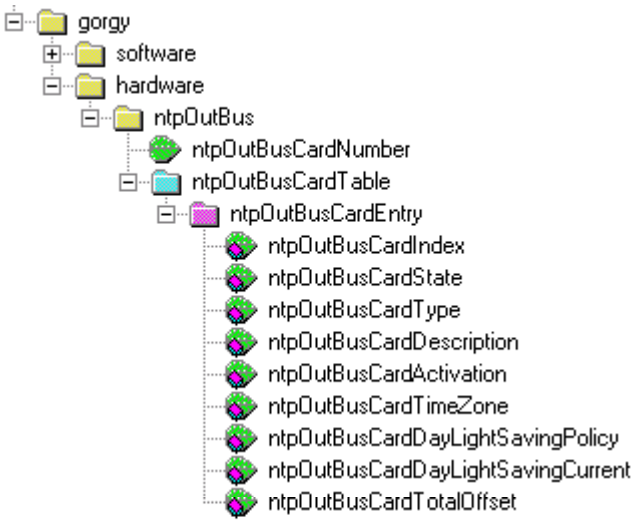
true(1) if the NTP software is using its own clock to deliver time through the NTP
false(0) if the NTP software is using time code from its synchronisation input

ntpSrvAutonomous

If **ntpSrvAutonomous**=*false*, give number of seconds that the server can works without time code at its input
If **ntpSrvAutonomous**=*true*, give number of remaining seconds before stopping synchronizing equipment through NTP
Other texts are possible (for example when there is no possible autonomy)

1.2. Hardware information MIB for the LEDI 1/S/RK Enhanced

The MIB describes which card is detected and what is the configuration for the cards. All the output cards and the display are connected to a same output bus.



The different fields of this branch are described below:

- **ntpOutBusCardNumber**
  Number of cards detected on output bus;
- **ntpOutBusCardTable**
  A table that shows all the cards detected on the output bus. Each card is indexed by its address (1..8 for output cards and 9 for the display). Each entry has the following format:
  - **ntpOutBusCardIndex**:
    Index of this entry (i.e card address). This value can have a value from 1 to 8 (for output cards) or 9 (for display);
  - **ntpOutBusCardState**:
    The state of the card. It can be **detected** that indicate that the card works correctly, **failure** if the card don't reply or **scrambled** if the reply from the card is incorrect;
  - **ntpOutBusCardType**:
    Type of the card (see Appendix E – Data - Stamp contents for a list of the possible output cards types);
  - **ntpOutBusCardDescription**:
    A textual description of the card;
  - **ntpOutBusCardActivation**:
    Indicate if the output of the card **activated** or **deactivated** (this feature can be controlled from the WEB interface). If the card cannot be deactivated, this field has the value **notapplicable**;[8]
  - **ntpOutBusCardTimeZone**:
    Time-zone for this output. This is displayed as an offset from universal time. This setting can be changed from the WEB interface;

[8] for example the display cannot be deactivated

- **ntpOutBusCardDayLightSavingPolicy**:
  Indicate which day saving time policy is used. If there is no DST, this field has the value **<none>**. This setting can be changed from the WEB interface;
- **ntpOutBusCardDayLighSavingCurrent**:
  Indicate if Day Saving Time is in effect (value **summertime**) or not (value **wintertime**). If Day Saving Time is not activated, this field has the value **notapplicable**;
- **ntpOutBusCardTotalOffset**:
  Indicate current total offset from UTC.

Here is an example of the description of the output cards displayed in a SNMP browser:

ntpOutBusCardIndex(IDX)	1	9
ntpOutBusCardState	detected(1)	detected(1)
ntpOutBusCardType	B [42 (hex)]	D [44 (hex)]
ntpOutBusCardDescription	AFNOR/IRIG B (NTPSAFN1/0252) ...	DISPLAY (NTPDISP2/0303) ...
ntpOutBusCardActivation	deactivated(0)	notapplicable(2)
ntpOutBusCardTimeZone	GMT +00:00 [47.4D.54.20.2B.30.30...	GMT +00:00 [47.4D.54.20.2...
ntpOutBusCardDayLightSavingPolicy	<none> [3C.6E.6F.6E.65.3E (hex)]	<none> [3C.6E.6F.6E.65.3E (...
ntpOutBusCardDayLightSavingCurrent	notapplicable(2)	notapplicable(2)
ntpOutBusCardTotalOffset	GMT +00:00 [47.4D.54.20.2B.30.30...	GMT +00:00 [47.4D.54.20.2...

1.3. Description of the SNMP traps

#	Related Mib variable	Alarm meaning
8	ntpSrvAutonomy	Warning: no time code. The time base has less than 3 minutes of autonomy
7	ntpSrvFailure	Failure: no more time code and the time base has no more autonomy
6 5	ntpSrvRescaled ntpSrvRescaling	NTP server software is rescaled or is rescaling on its PPS source
4	ntpSrvSecurityLock	NTP server locked consequently to an abrupt rescaling
3	ntpSrvUserLock	NTP server locked by the user
1 2	ntpSrvSynchronized ntpSrvUnSynchronized	The hardware is synchronized or not on its time reference

APPENDIX A – CONNECTIONS

This appendix contains a description of the different connectors of the LEDI 1/S/RK Enhanced. All the plugs are localized on the backside of the product.

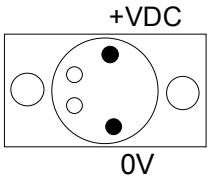
1. Connection for all products

1.1. 230V and 115V AC product (type '0')

The backside of the product has a standard power supply plug, the Ethernet RJ45 plug and a RESET button as shown below:

1.2. 18/72V DC product (type '9')

The Ethernet connector and the RESET button are the same. Only the power supply plug is different.



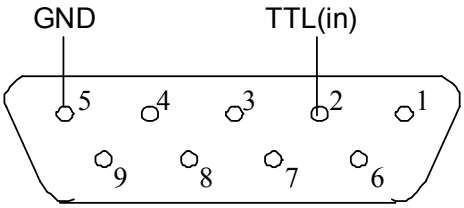
2. AFNOR NFS87500 / IRIG-B sine wave / TDF / DCF synchronization input

The AFNOR/IRIG-B or TDF / DCF synchronization input is localized on the backside of the product. Synchronization is done through a 2 points plug without polarity, as shown below:

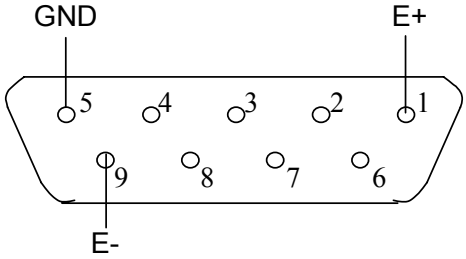
3. AFNOR NFS87500/ IRIG-B DCLS synchronization input

The AFNOR/IRIG-B DCLS (not modulated) synchronization input is localized on the backside of the product. Synchronization is done through a DB9 plug as shown below:

Connector pins for TTL input :



Connector pins for RS422 input :

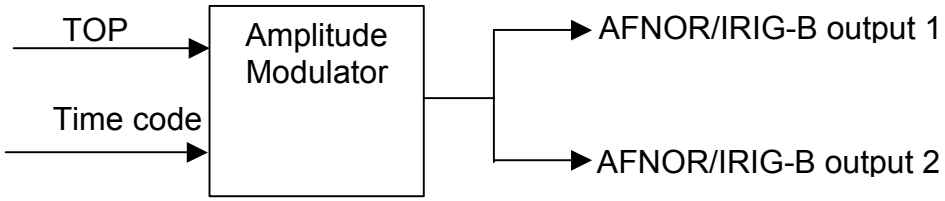


4. GPS synchronization input

The GPS antenna input is localized on the backside of the product. Connection is done through a SMA plug.

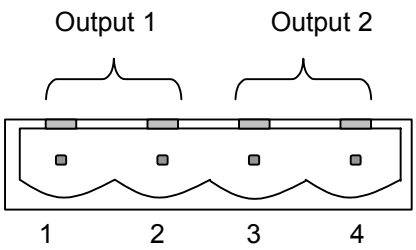
5. Dual AFNOR/IRIG-B NFS87500 output (‘B’ type)

This card has its output on a single 4 points plug. The AFNOR code is available twice on this output. Here is a schematic overview of the AFNOR/IRIG-B output card:



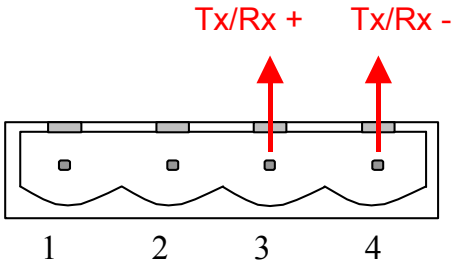
The output connector is localized on the back side of the rack and is shown below:

Here is the pin-out of the connector (the same signal is generated on outputs ½ and ¾) :

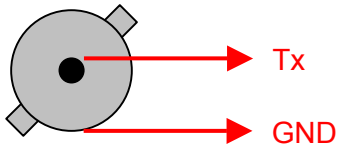


6. Dual AFNOR/IRIG-B NFS87500 DCLS RS422 and TTL output (‘T’ type)

This card has its outputs on a 4 points plug and a BNC connector. The RS422 AFNOR code is available on the 4 points output :



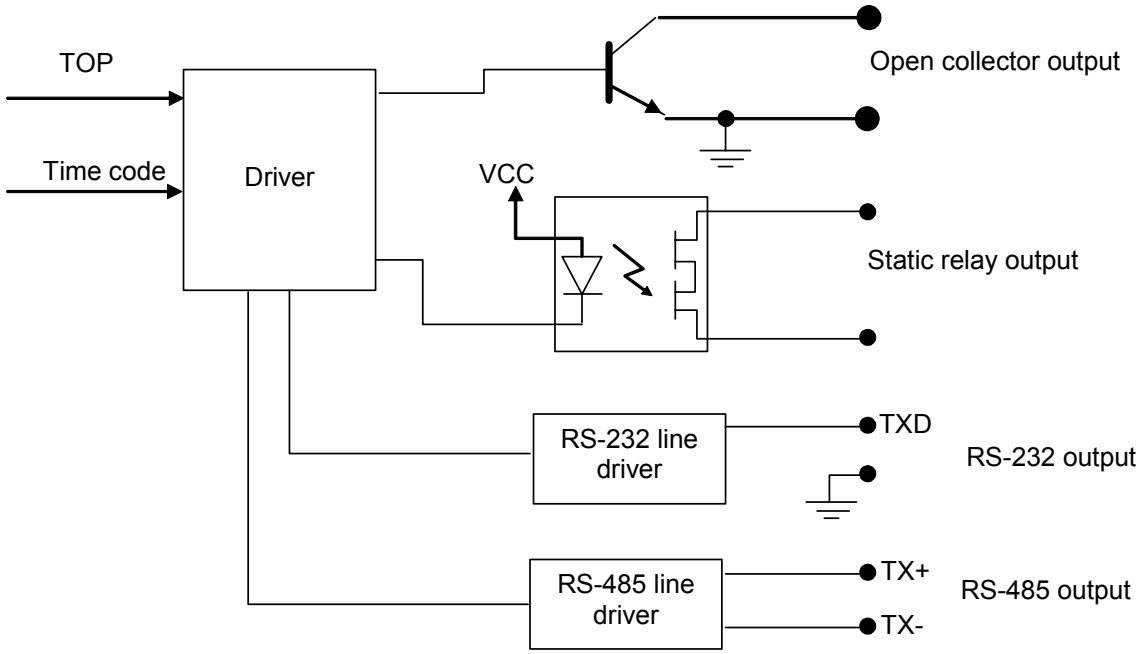
The BNC connector provides TTL signal :



7. RS232 and 485/422 ASCII+TOP ('A' and 'R' type)

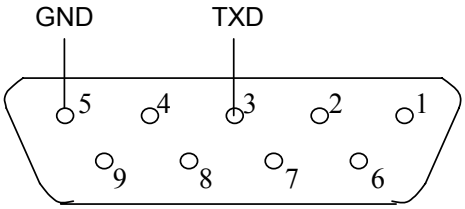
The ASCII+TOP card has a 4 points plug and a DB9 connector. The 4 points plug is used to output the TOP through static relays and the DB9 plug is used to output time frame using RS-232 levels.

Here is a schematic overview of the ASCII+TOP output:

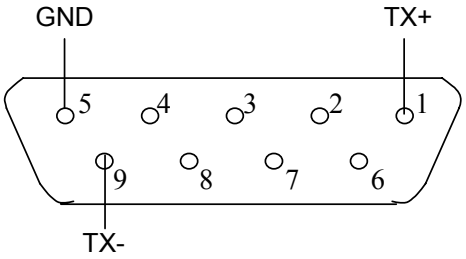


The ASCII DB9 connector is localized on the backside of the rack and is shown below.

Connector pin-out for RS232 :



Connector pin-out for RS485 and RS422 :

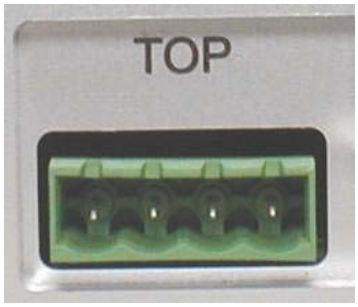


The pulse (TOP) output is described below :

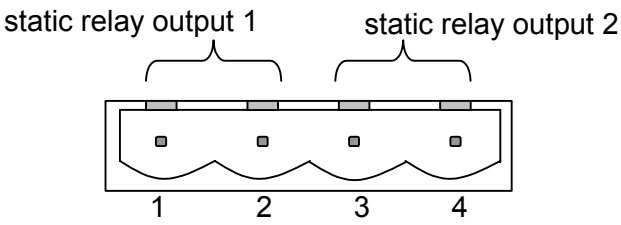
8. TOP / ALARM output ('A', 'R' type and 'G' type)

8.1. Pin-out

The 4 points plug on the ASCII and ALARM cards can provide a configurable time pulse or synch/power alarm pulse.



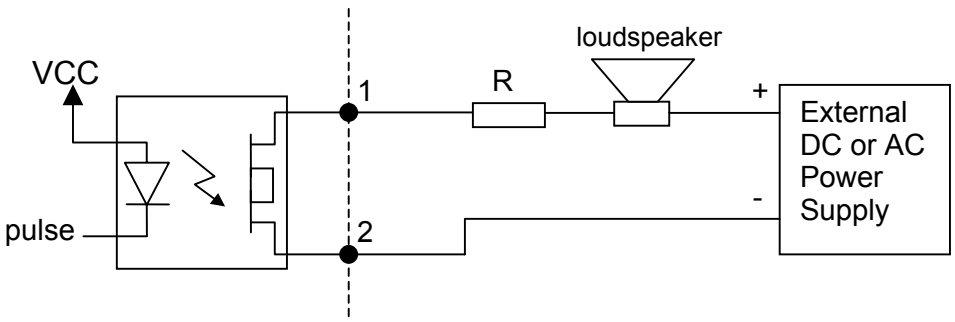
The 4 points plug has the following pin-out:



Static Relay Outputs 1 and 2 :

- **Pin 1, Pin 2 :** without polarity
- **Max. switching voltage :** 350 V AC/DC
- **Max. switching current :** 130 mA

Example of how to use the static relay output (pins 1-2) :

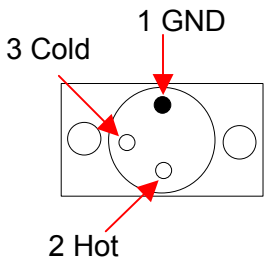


WARNING :
V max = 60 Volts

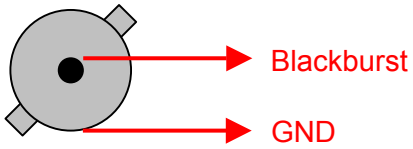
WARNING : You must ensure that $i = \frac{V}{R} < 130mA$

9. SMPTE OUTPUT ('S' type)

SMPTE connector:



Blackburst connector:



<u>Configuration of switch S4:</u>

Located on the output card, this switch is used to set the rising and falling edges to the desired standard.

- To set in SMPTE standard, switch towards the back panel
- To set in EBU standard, switch towards the front panel

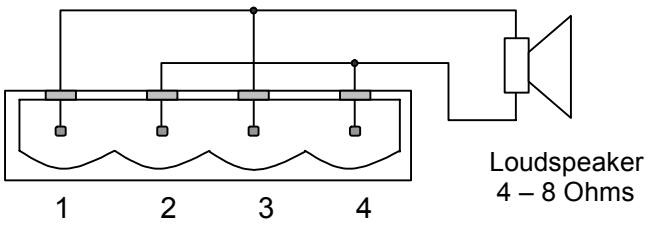
<u>Level output:</u>

Using the P1 potentiometer located on the output card, adjust the output code to the desired level.

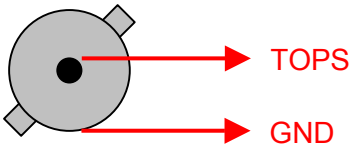
10. 4/6 TOPS 1000Hz and FLAIX 861Hz OUTPUT ('H' type)

This card has its output on a 4 points plug and a BNC socket:

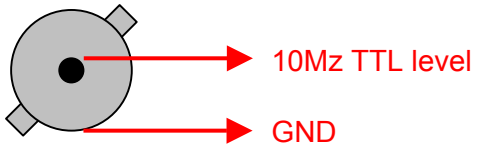
- The 4 points plug provides a low impedance output available for a 4/8 Ohms loudspeaker



- The BNC socket provides a 50 Ohms sinusoidal output (Level 6,6 dBm)



11. 10MHz TTL OUTPUT (GPS synchronization and OCXO only)



APPENDIX B – OUTPUT CODE FORMAT

This appendix contains a description of the time code used for the different kind of outputs.

1. 'A' and 'R' type cards (ASCII+TOP output)

The default configuration is shown below:

- The PPS is generated every 30 seconds and is 1 second long;
- The ASCII frame is the "Gorgy Uni" protocol

By using the WEB interface, you can choose another protocol and set the transmission parameters as you want.

The existing protocols are listed below:

Gorgy Uni:

- Uni-directional mode
- The ASCII frame is generated every second at the same time than the PPS.
- The size of this frame is 24 characters with following format:

STX	D	A	Y		10D	D	/	10M	M	/	10Y	Y			10H	H	:	10m	m	:	10S	S	CR

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	STX	1	Start of Text ($02) – mark the beginning of the frame.
2,3,4	D,A,Y	3	The day in the week in a human-readable way (MON, TUE, WED, THU, FRI, SAT, SUN for Monday to Sunday)
5		1	Space character ($20)
6,7	10D,D	2	Day in the month on two ASCII characters ($30,$31 to $33,$31)
8	/	1	Forward slash character ($2F)
9,10	10M,M	2	Month in the year on two ASCII characters ($30,$31 to $31,$32)
11	/	1	Forward slash character ($2F)
12,13	10Y,Y	2	Year on two ASCII characters ($30,$30 for 2000 – $39,$39 for 2099)
14,15		2	Two Space characters ($20)
16,17	10H,H	2	Hours on two ASCII characters ($30,$30 to $32,$33)
18	:	1	Colon character ($3A)
19,20	10m,m	2	Minutes on two ASCII characters ($30,$30 to $35,$39)
21	:	1	Colon character ($3A)
22,23	10S,S	2	Seconds on two ASCII characters ($30,$30 to $35,$39)
24	CR	1	Carriage Return ($0D) – mark the end of the frame

Gorgy Bi:

- Bi-directional mode
- The ASCII frame is generated on receipt of 'D' ASCII character.
- The size of this frame is 27 characters with following format:

STX	10C	C		D	A	Y		10D	D	/	10M	M	/	10Y	Y			10H	H	:	10m	m	:	10S	S	CR

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	STX	1	Start of Text ($02) – mark the beginning of the frame.
2,3	10C,C	2	Cents of second on two ASCII characters ($30,$30 to $39,$39)
4		1	Space character ($20)
5,6,7	D,A,Y	3	The day in the week in a human-readable way (MON, TUE, WED, THU, FRI, SAT, SUN for Monday to Sunday)
8		1	Space character ($20)
9,10	10D,D	2	Day in the month on two ASCII characters ($30,$31 to $33,$31)
11	/	1	Forward slash character ($2F)
12,13	10M,M	2	Month in the year on two ASCII characters ($30,$31 to $31,$32)
14	/	1	Forward slash character ($2F)
15,16	10Y,Y	2	Year on two ASCII characters ($30,$30 for 2000 – $39,$39 for 2099)
17,18		2	Two Space characters ($20)
19,20	10H,H	2	Hours on two ASCII characters ($30,$30 to $32,$33)
21	:	1	Colon character ($3A)
22,23	10m,m	2	Minutes on two ASCII characters ($30,$30 to $35,$39)
24	:	1	Colon character ($3A)
25,26	10S,S	2	Seconds on two ASCII characters ($30,$30 to $35,$39)
27	CR	1	Carriage Return ($0D) – mark the end of the frame

Si-Clock:

- Uni-directional mode
- The ASCII frame is generated every second at the same time than the PPS.
- The size of this frame is 32 characters with following format:

STX	'D'	:	10D	D	.	10M	M	.	10Y	Y	;	'T'	:	W	;	'U'	:	10H	H	.	10m	m	.	10S	S	;	#	*	EH	!	ETX

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	STX	1	Start of Text ($02) – mark the beginning of the frame.
2	'D'	1	'D' ASCII character ($44)
3	:	1	Colon character ($3A)
4,5	10D,D	2	Day in the month on two ASCII characters ($30,$31 to $33,$31)
6	.	1	Dot character ($2E)
7,8	10M,M	2	Month in the year on two ASCII characters ($30,$31 to $31,$32)
9	.	1	Dot character ($2E)
10,11	10Y,Y	2	Year on two ASCII characters ($30,$30 for 2000 – $39,$39 for 2099)
12	;	1	Semi-colon character ($3B)
13	'T'	1	'T' ASCII character ($54)
14	:	1	Colon character ($3A)
15	W	1	Weekday on one ASCII character ($31 to $37 for Monday to Sunday)
16	;	1	Semi-colon character ($3B)
17	'U'	1	'U' ASCII character ($55)
18	:	1	Colon character ($3A)
19,20	10H,H	2	Hours on two ASCII characters ($30,$30 to $32,$33)
21	.	1	Dot character ($2E)
22,23	10m,m	2	Minutes on two ASCII characters ($30,$30 to $35,$39)
24	.	1	Dot character ($2E)
25,26	10S,S	2	Seconds on two ASCII characters ($30,$30 to $35,$39)
27	;	1	Semi-colon character ($3B)
28	#	1	Number sign character ($23) if the time base is not initialized Space character ($20) if the time base is initialized
29	*	1	Asterisk character ($2A) if the time base is in free running mode Space character ($20) if the time base is synchronized
30	EH	1	'U' ASCII character ($55) if the delivered time is the UTC time Space character ($20) if the delivered time is the standard time 'S' ASCII character ($53) if the delivered time is the summer time
31	!	1	Exclamation mark ($21) in case of change to summer/winter time (announcement one hour in advance) Space character ($20) otherwise
32	ETX	1	End of Text ($03) – mark the end of the frame

SAF/TROY:

- Uni-directional mode
- The ASCII frame is generated every second at the same time than the PPS.
- The size of this frame is 15 characters with following format:

SOH	10Y	Y	10M	M	10D	D	10H	H	10m	m	10S	S	EOT	CHK

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	SOH	1	Start of Header ($01) – mark the beginning of the frame.
2,3	10Y,Y	2	Year on two ASCII characters ($30,$30 for 2000 – $39,$39 for 2099)
4,5	10M,M	2	Month in the year on two ASCII characters ($30,$31 to $31,$32)
6,7	10D,D	2	Day in the month on two ASCII characters ($30,$31 to $33,$31)
8,9	10H,H	2	Hours on two ASCII characters ($30,$30 to $32,$33)
10,11	10m,m	2	Minutes on two ASCII characters ($30,$30 to $35,$39)
12,13	10S,S	2	Seconds on two ASCII characters ($30,$30 to $35,$39)
14	EOT	1	End of Transmission ($04) – mark the end of the frame
15	CHK	1	Checksum = Exclusive OR off all characters excluding SOH

EH90:

- Uni-directional mode
- The hexadecimal frame is generated at the end of the second number two of each minute
- The parameters must be set to “1200,8,E,2” in RS232 mode only, so that the last character of the frame is synchronized with the PPS.
- A RS232 level pulse (DPE) is generated at the same time than the frame
- A specific pin-out of the DB9 connector is defined for this protocol: 1, 3 = GND; 6 = TXD; 7 = DPE; Other pins are not connected.
- The size of this frame is 12 characters with following format:

SOH	STATUS	STX	W		D	M	Y	H	m	S	ETX	SYN

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	SOH	1	Start of Header ($01) – mark the beginning of the frame.
2	STATUS	1	8 bits for the time status: - b7,b6 = 0 - b5 = Holiday - b4 = Summer time - b3 = Winter time - b2 = Time is no more synchronized - b1 = Time is not synchronized for more than 48 hours - b0 = 0
3	STX	1	Start of Text ($02)
4	W	1	Weekday on one DCB character ($01 to $07 for Monday to Sunday)
5	D	1	Day in the month on one DCB character ($01 to $31)
6	M	1	Month in the year on one DCB character ($01 to $12)
7	Y	1	Year on one DCB character ($00 for 2000 – $99 for 2099)
8	H	1	Hours on one DCB character ($00 to $23)
9	M	1	Minutes on one DCB character ($00 to $59)
10	S	1	Seconds on one DCB character ($00 to $59)
11	ETX	1	End of Text ($04) – mark the end of the frame
12	SYN	1	Synchronous Idle ($16) – at the same time than the PPS

EH90- FF:

- The same protocol as above with an additional character (value = $FF) which is added at the beginning of the frame.
- The size of this frame is 13 character with the following format:

FF	SOH	STATUS	STX	W		D	M	Y	H	m	S	ETX	SYN

IBM/SYSPLEX:

- Bi-directional mode
- After the receipt of one 'C' ASCII character, the ASCII frame is generated every second at the same time than the PPS. This size of this frame is 16 characters with following format:

SOH	100D	10D	D	:	10H	H	:	10m	m	:	10S	S		CR	LF

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	SOH	1	Start of Header ($01) – mark the beginning of the frame.
2,3,4	100D, 10D, D	3	Day in the year on three ASCII characters ($30,$30,$31 to $33,$36,$36)
5	:	1	Colon character ($3A)
6,7	10H,H	2	Hours on two ASCII characters ($00 to $23)
8	:	1	Colon character ($3A)
9,10	10m,m	2	Minutes on two ASCII characters ($00 to $59)
11	:	1	Colon character ($3A)
12,13	10S,S	2	Seconds on two ASCII characters ($00 to $59)
14		1	Space character ($20)
15	CR	1	Carriage Return ($0D)
16	LF	1	Line Feed ($0A) – mark the end of the frame

Thales:

- Uni-directional mode
- The ASCII frame is generated every second at the same time than the PPS.
- A RS232 level pulse is generated at the same time than the PPS on the pin number 7 of the DB9 connector.
- The size of this frame is 16 characters with following format:

SOH	100D	10D	D	:	10H	H	:	10m	m	:	10S	S	P	CR	LF

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	SOH	1	Start of Header ($01) – mark the beginning of the frame.
2,3,4	100D, 10D, D	3	Day in the year on three ASCII characters ($30,$30,$31 to $33,$36,$36)
5	:	1	Colon character ($3A)
6,7	10H,H	2	Hours on two ASCII characters ($30,$30 to $32,$33)
8	:	1	Colon character ($3A)
9,10	10m,m	2	Minutes on two ASCII characters ($30,$30 to $35,$39)
11	:	1	Colon character ($3A)
12,13	10S,S	2	Seconds on two ASCII characters ($30,$30 to $35,$39)
14	P	1	Time base accuracy: - < 1µs = Space character ($20) - 1-10µs = . Dot character ($2E) - 10-100µs = * Asterisk character ($2A) - 100µS-1ms = # Number sign character ($23) - > 1ms = ? Question mark ($3F)
15	CR	1	Carriage Return ($0D)
16	LF	1	Line Feed ($0A) – mark the end of the frame

OLD BHL Uni:

- Uni-directional mode
- The ASCII frame is generated every second at the same time than the PPS.
- During initialization, only the last character is sent (CR)
- The size of this frame is 18 characters with following format:

S	10S	m	10m	H	10H	W	D	10D	M	10M	Y	10Y	F	EH	C	P	CR

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1,2	S,10S	2	Seconds on two ASCII characters with the units first ($30,$30 to $39,$35)
3,4	m,10m	2	Minutes on two ASCII characters with the units first ($30,$30 to $39,$35)
5,6	H,10H	2	Hours on two ASCII characters with the units first ($30,$30 to $33,$32))
7	W	1	Weekday on one ASCII character ($31 to $37 for Monday to Sunday)
8,9	D,10D	2	Day in the month on two ASCII characters with the units first ($31,$30 to $31,$33)
10,11	M,10M	2	Month on two ASCII characters with the units first ($31,$30 to $32,$31)
12,13	Y,10Y	2	Year on two ASCII characters with the units first ($30,$30 for 2000 – $39,$39 for 2099)
14	F	1	'F' ASCII character ($46) for holiday, Space character ($20) otherwise
15	EH	1	'H' ASCII character ($48) if the delivered time is the standard time 'E' ASCII character ($45) if the delivered time is the summer time
16	C	1	'C' ASCII character ($43) in case of change to summer/winter time (announcement one hour in advance) Space character ($20) otherwise
17	P	1	'P' ASCII character ($50) if the time base is in free running mode Space character ($20) if the time base is synchronized
12	CR	1	Carriage Return ($0D) – mark the end of the frame

OLD BHL Bi:

- Bi-directional mode
- The ASCII frame is generated on receipt of two characters with following format:

'H'	CR

- The returned frame is exactly the same as the "OLD BHL Uni" protocol.

S	10S	m	10m	H	10H	W	D	10D	M	10M	Y	10Y	F	EH	C	P	CR

NEW BHL Uni:

- Uni-directional mode
- The binary coded frame is generated every second at the same time than the PPS
- During initialization, only one character is sent: (CR)
- The size of this frame is 9 characters with following format:

Y	M	D	W	H	m	S	TS	STATUS

Here is a description of the different fields of this frame:

Byte Nr	Field	Size	Value/Meaning
1	Y	1	Year on one binary character ($00 for 2000 – $63 for 2099)
2	M	1	Month in the year on one binary character ($01to $0C)
3	D	1	Day in the month on one binary character ($01-$1F)
4	W	1	Weekday on one binary character ($01 to $07 for Monday to Sunday)
5	H	1	Hours on one binary character ($00 to $17)
6	M	1	Minutes on one binary character ($00 to $3B)
7	S	1	Seconds on one binary character ($00 to $3B)
8	TS	1	Tenths of second on one binary character ($00 to $09)
9	STATUS	1	8 bits for the time status: - b7 = 0 - b6 = Change to summer/winter time announcement - b5 = One day before holiday - b4 = Holiday - b3 = Summer time - b2 = Winter time - b1 = Time is synchronized - b0 = Delivered time is valid

NEW BHL Bi:

- Bi-directional mode
- The ASCII frame is generated on receipt of one character CR ($0D)
- The returned frame is exactly the same as the “NEW BHL Uni” protocol.

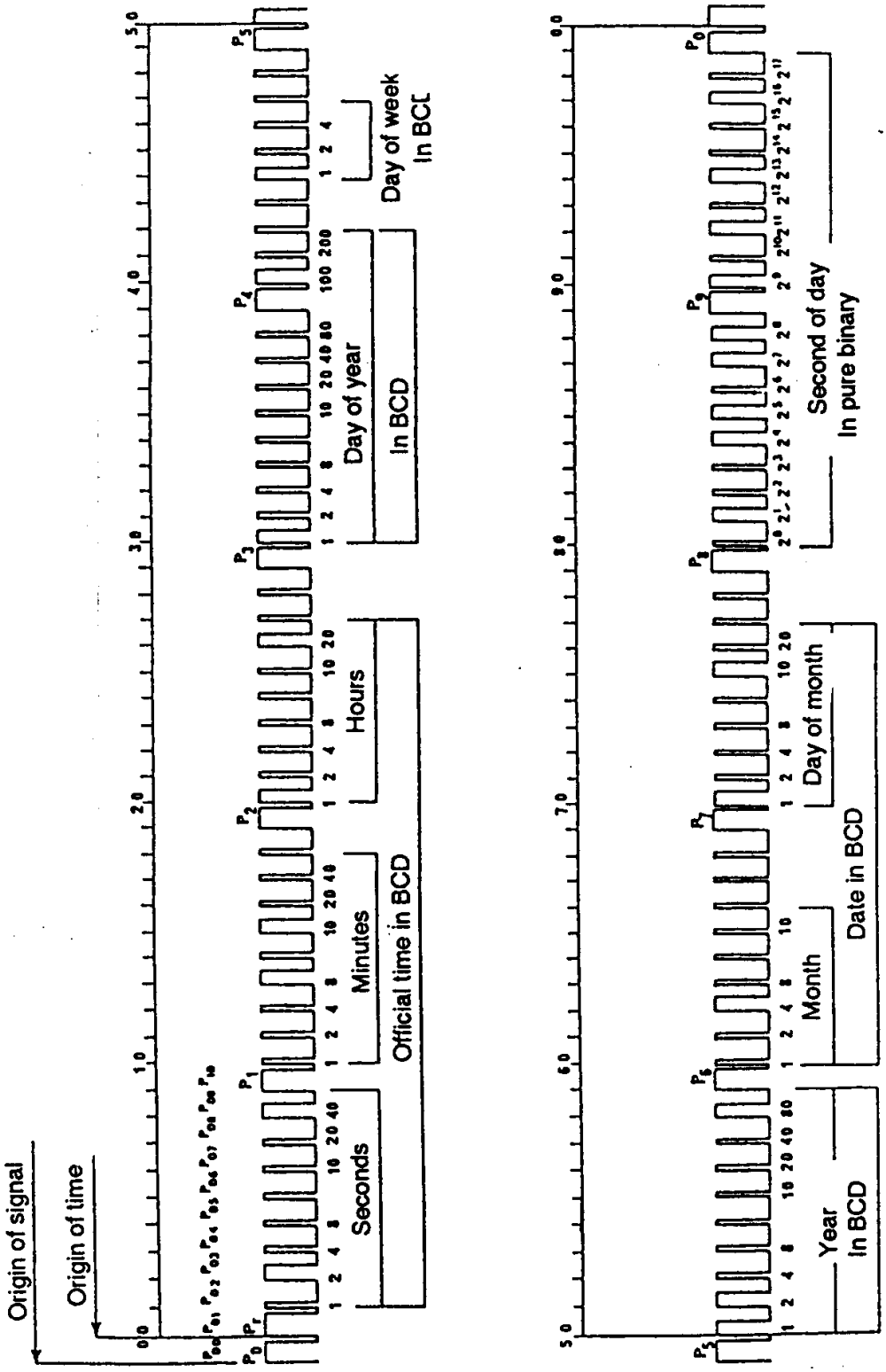
Y	M	D	W	H	m	S	TS	STATUS

- During initialization, all characters except S and TS are set to $FF

FF	FF	FF	FF	FF	FF	S	TS	FF

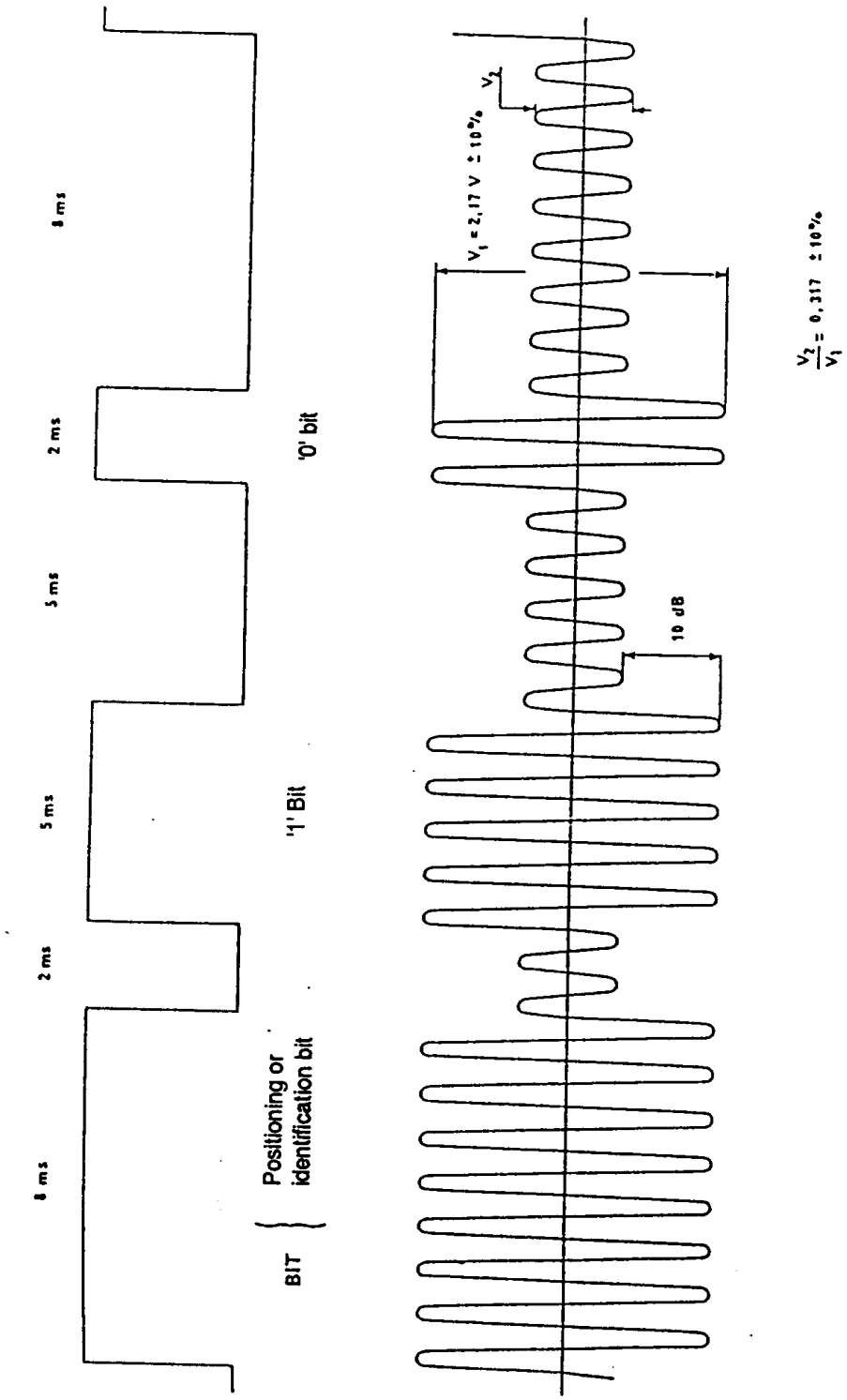
2. ‘B’ and ‘T’ type cards (AFNOR/IRIG-B NFS87500)

2.1. Frame format



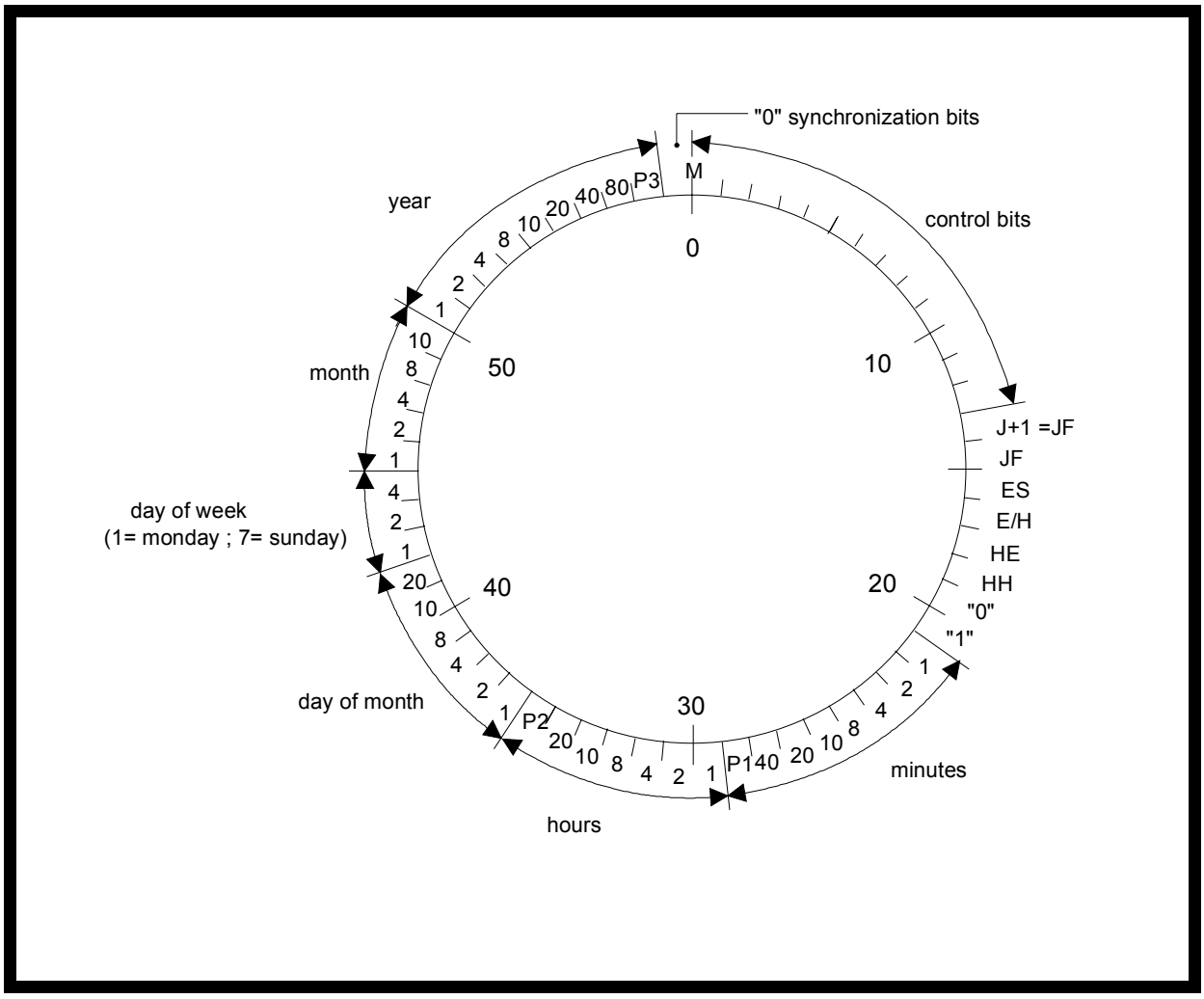
2.2. Bit encoding

The signal is modulated only on ‘B’ card. The ‘T’ card output signal has TTL level.



3. DCF and TDF time code description

Details of message transmitted over a full minute :



KEY:

J	Current day
JF	State holiday
ES	Standby transmitter used
E/H	Indicates a seasonal changeover on the next hour
HE	Summer time
HH	Winter time
P1, P2, P3	Parity bits

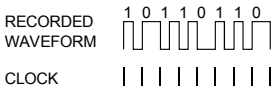
4. SMPTE message description

			EUROPEAN FORMAT	US FORMAT	LEITCH FORMAT
0	1	START CLOCK EDGE BETWEEN BIT 79 AND BIT 0			
	2	FRAMES UNITS			
	4				
	8				
4	0				
	0	1 st d BINARY GROUP	0	0	0
	0				
	0				
8	10	FRAMES TENS			
	20				
	0	COLOR FRAME FLAG			
12	1				
	2	2 d BINARY GROUP	Day of Week	Day of Week	Days units
	4				
	0				
16	1				
	2	SECONDS UNITS			
	4				
	8				
20	1				
	2	3 d BINARY GROUP	Days units	Months units	Months units
	4				
	8				
24	10				
	20	SECONDS TENS			
	40				
		BI-PHASE MARK PHASE CORRECTION BIT (EBU)			
28	10				
	20	4 th BINARY GROUP	Days tens	Months tens	Months and days tens
	0				
	0				
32	1				
	2	MINUTES UNITS			
	4				
	8				
36	1				
	2	5 th BINARY GROUP	Months units	Days units	0
	4				
	8				
40	10				
	20	MINUTES TENS			
	40				
	0				
44	10				
	0	6 th BINARY GROUP	Months tens	Days tens	Years units
	0				
	0				
48	1				
	2	HOURS UNITS			
	4				
	8				
52	1				
	2	7 th BINARY GROUP	Years units	Years units	0
	4				
	8				
56	10				
	20	HOURS TENS			
	0	UNASSIGNED ADDRESS BIT 58			
		BI-PHASE MARK PHASE CORRECTION BIT (EBU)			
60	10				
	20				
	40	8 th BINARY GROUP	Years tens	Years tens	Years tens
	80				
64	0				
	0				
	1				
	1				
68	1				
	1				
	1				
	1				
72	1	SYNC WORD			
	1				
	1				
	1				
76	1				
	1				
	0				
79	1				

LONGITUDINAL BIT ASSIGNMENT

80 BITS PER FRAME

32 USER BINARY SPARE BITS
16 SYNC
31 ASSIGNED ADDRESS
1 UNASSIGNED ADDRESS
THE UNASSIGNED BIT IS
LOGICAL ZERO UNTIL ASSIGNED



APPENDIX C – TROUBLESHOOTING

This section tries to answer to most frequent question concerning the use of your device. First, ensure that the **GTNetManager** software and a SUN JAVA Virtual Machine 1.4.2_X minimum are installed on your computer.

GtNetManager can't see the server ?

1. At least one LED above the Ethernet plug must be set or blinking. Otherwise, there is a network connexion problem, or a power problem.

2. If you use several VLAN (Virtual Local Area Network), verify that the device is on the same VLAN than your computer.

3. Verify that the IP address of your computer and the one of the server are in the same range. The network mask should be identical.

   For example, the server configuration is :
   IP : 192.168.10.85 and **MASK : 255.255.255.0**

   Then your computer configuration should be :
   IP : 192.168.10.x and **MASK : 255.255.255.0** (where **x** is between **0** and **255**).

   ➔ DHCP ADDRESSING
   The default IP configuration of the server is in DHCP mode. If DHCP is set, see below.

   ➔ FIXED ADDRESS IS LOST
   If you have lost the IP address you fixed to the server, you can use the MAC address (see next question).

   ➔ FIXED ADDRESS IS UNREACHABLE
   If you cannot reach the server at the IP address you fixed, there should be an IP address conflict with an other device connected to the network. You can use a cross cable to connect directly to the server.

4. Is there a running DHCP server on the network or on your computer ?

   ➔ **YES**
   The server asks the DHCP server for an IP address at start-up. Maybe the server started before being connected to the network. Start-up again the server and try again.

   ➔ **NO**
   You can eventually download a DHCP server on Internet (www.telecharger.com). Otherwise see below to continue without DHCP.

5. When no DHCP server is reachable, the server takes automatically an IP address in the range **169.254.x.y**. You need to change your computer IP to the same range (for example **169.254.0.1**) and a network mask **255.255.0.0**. You can eventually use a cross cable.

   The server is detected :

   ➔ **YES**
   You can now configure your server through the WEB page.

   ➔ **NO**
   The server is maybe in fixed IP address mode.

How acceding to the server using its MAC address ?

The physical address (MAC) of the Ethernet interface is written on the bottom. It is a 12-hexadecimal number (for example **00-20-4a-82-8c-1d**).

In a command window, type :

arp -s 192.168.10.53 00-20-4a-82-8c-1d
then :
telnet 192.168.10.53 1

The server is fixed temporarily at the IP address **192.168.10.53**. You can now configure its IP address through the WEB page or **GtNetManager**.

The WEB page can't be opened ?

1. First, is the server reachable with **GTNetManager** ?

   ➔ YES
   Your computer and the server should have the same IP range and the same network mask.

   ➔ NO
   See previous question.

2. If you use the SUN Java virtual Machine 1.4.2_x, go to:

   *Start Menu->Settings->ControlPanel->Java Plug-in->Advanced - select JRE 1.4.2_*
   Start Menu->Settings->ControlPanel->Java Plug-in->Cache - Uncheck "Enable Caching"

   For the 1.5.0 version :

   Start-> Parameters->Configuration Panel->Java->"Temporary Internet Files" - Parameters->Show applets->Uncheck "Activate caching"

3. Has the page been found by the browser (the loading begins but fails after a while) ?

   ➔ NO, PAGE NOT FOUND
   If you use "Internet Explorer", go to :

   Tools → Internet Options → Connections → Network Parameters

   The browser should not use proxy ; uncheck all checkboxes.

   ➔ YES
   WEB page is reachable, but the browser is unable to load it. Open a TELNET session:

   Telnet < ip address> 9999
   Password : gtmt

   Proceed to a **"Factory Default"**, then **"Quit and save"**. Refresh the WEB page.

An output is not visible in the configuration WEB page ?

1. Press 'F5' to refresh the WEB page, and go back to output panel. If the output is still missing, see next point.

2. Open a TELNET session:

   Telnet < ip address> 9999
   Password : gtmt

   Proceed to a **"Factory Default"**, then **"Quit and save"**. Refresh the WEB page.

3. If the output is still missing, open the device. Check the black cables connections and the switches configurations (see Appendix D – MAINTENANCE / Output card switches verification).

The screen displays **"no time code!"** or **"NO TIME CODE!"** ?

Verify your time source because the device is not synchronized.

Notice : in case of GPS synchronization and OCXO oscillator, wait 20 minutes during the warm up of the OCXO and the satellites discovery.

APPENDIX D – MAINTENANCE

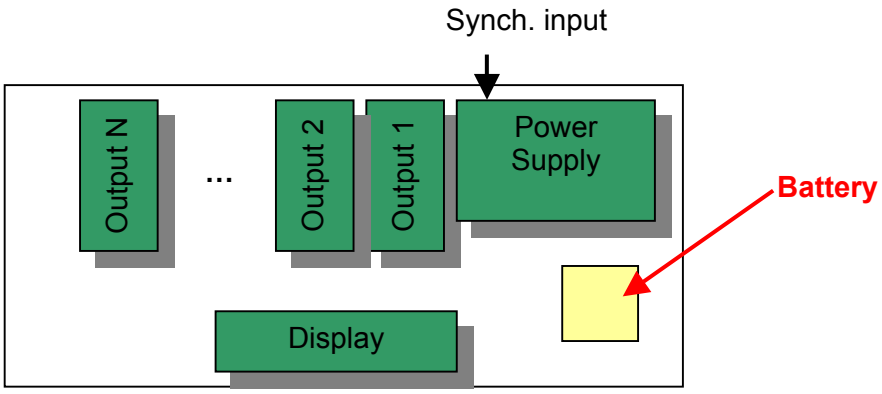
1. Procedure to follow to change the battery

Tools : Screw Driver
Gorgy Timing reference : BAT1728S
Life period : 5 years

Battery checking

Connect the product to the 230VAC during one hour.
Remove the power supply.

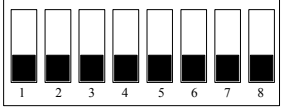
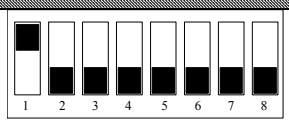
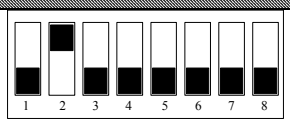
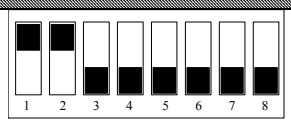
Open the product with the screw driver, the battery is located between the power supply card and the display card



- Disconnect the old battery with the screw driver.
- Check the voltage, if the voltage is **less than 7V, the battery is on failure.**
- Connect the new battery with the screw driver.

2. Output card switches verification

If you need to add an output card or if an output seems to be in failure (do not appear in the WEB page), open the device and verify the switch configuration on the output cards:

	Output 1 (the nearest of the supply card 103064)	**Output 2**	**Output 3**	**Output 4 (the furthest of the supply card 103064)**
1 output				
2 outputs				
3 outputs				
4 outputs				

The 8th switch of each card allows you to test the card by forcing the signal on output. **Don't forget to put it OFF again after testing!**

3. Updating Firmware

3.1. Obtaining Firmware

Firmware updates and releases notes for GORGY TIMING devices can be downloaded directly from GORGY TIMING WEB site (www.ntp-secured-solutions.com).

This tool only runs on a PC running Windows 98, NT, 2000 or XP.

The upgrade is an auto-extractable executable. The name of this tool has the following layout:

*product_* upgrade_ *prevers_* *new_vers_* .exe

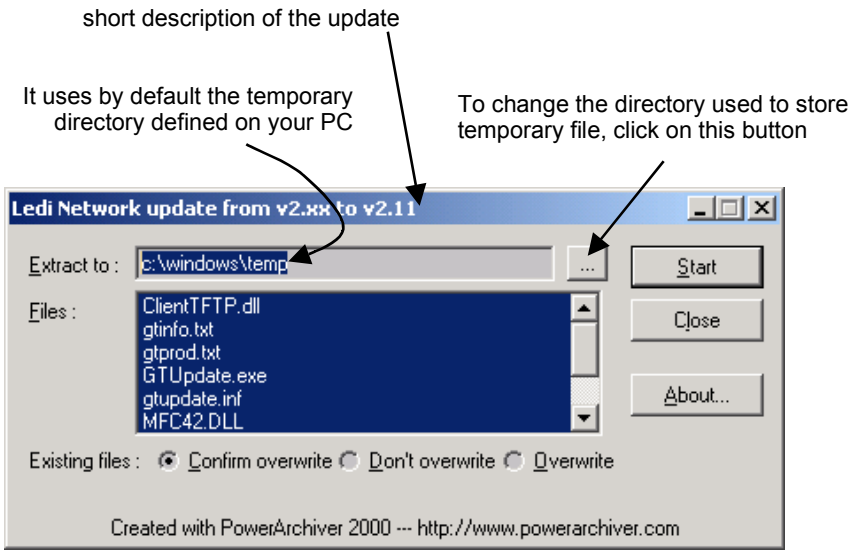
The different fields of this name are :

- *product_* : name of the product concerned by the update
- *prevers_* : version of the product concerned by the update ;
- *new_vers_* : new version of the product after applying the update.

For example, for an update of the LEDI 1/S/RK Enhanced from any version 2 to the version 2.11, the update file shall have the name `ledinetwork_upgrade_2xx_211.exe`.

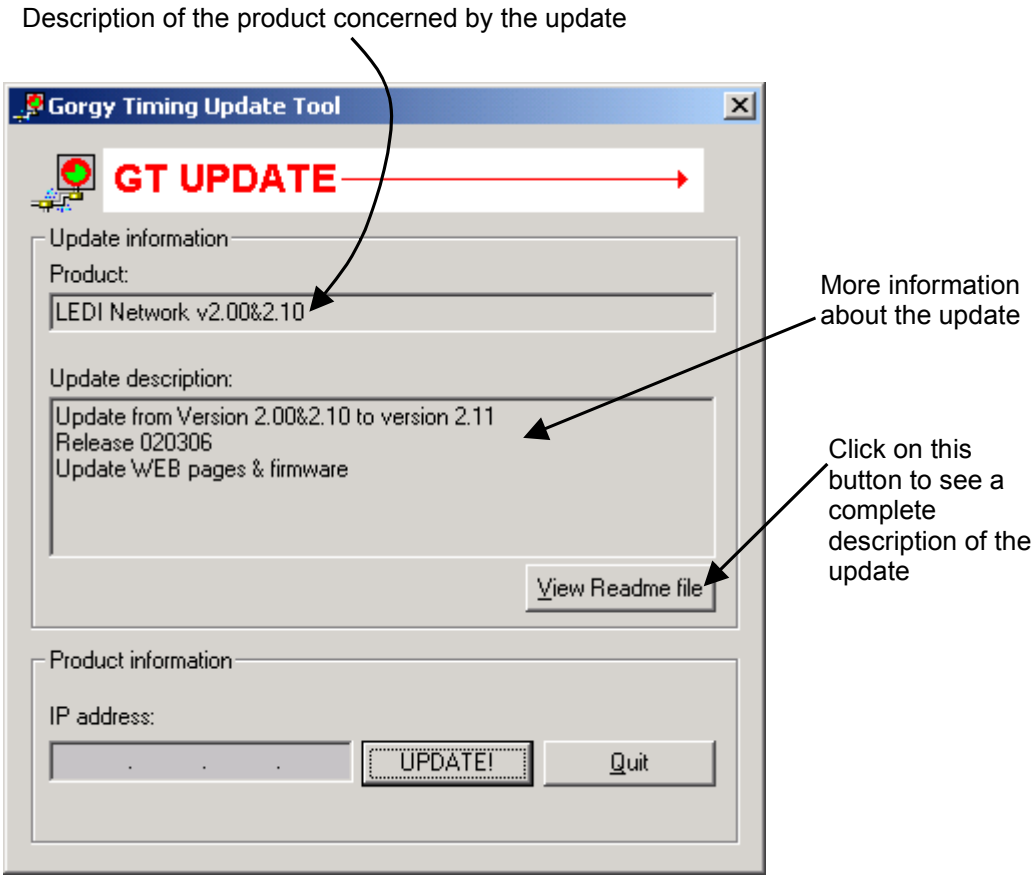
3.2. Reloading Firmware

Download the update executable and run it from your computer or execute it directly from the WEB site. The following window appears at the screen :



Click on the **Start** button to extract all the files needed for the update. When the extraction is terminated, the tool **GTNetMng** is automatically started.

When all the files have been extracted correctly, the tool start automatically.

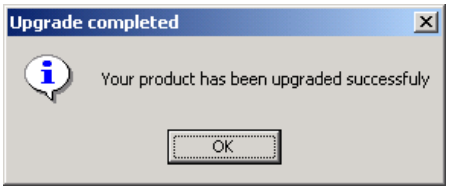


To really start the update, enter the IP address of the product in the field **IP address** and click on the **UPDATE !** button. The update process start immediately.

When a problem occurs, an error message is displayed. Check the following points:

- The product to update must be accessible through your network from the PC used to run `GTUpdate` ;
- check that the IP address is valid, compatible with those of your PC and that it's really the address of a Gorgy Timing product;
- Check that the product to update is powered.

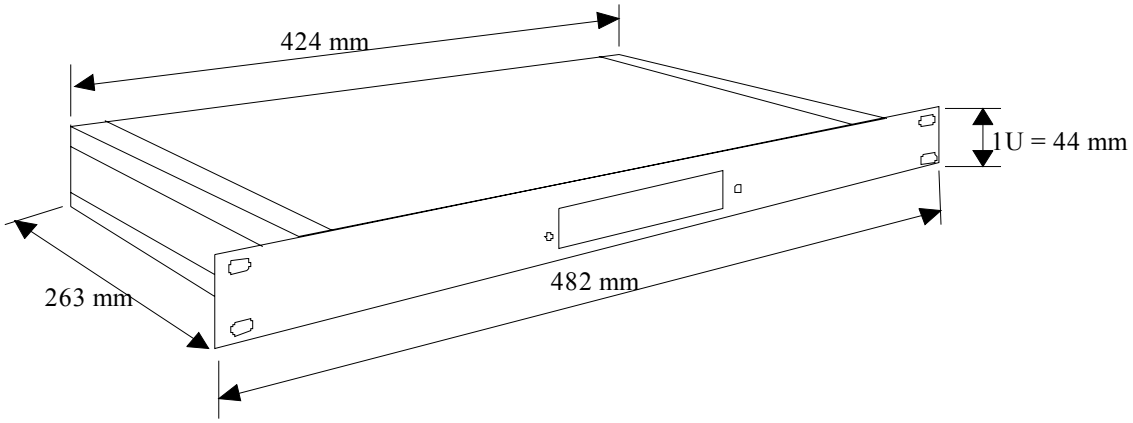
When everything is OK, the following panel is displayed :



APPENDIX E – DATA

1. Measurements

The rack is a standard 19” 1U rack. Here are its dimensions:



2. Specifications

Power requirement	230 V AC	Maximum: 0,1 A max, Typical : 20 mA plus 2mA per output
	115V AC	Maximum : 0,2 A max, Typical : 40 mA plus 4mA per output
	18-72V DC	Maximum : 0,6-0,15 A max Typical : 250mA plus 25 mA per output (18V) 62mA plus 7 mA per output (72V)
Environmental	*Operating Temperature*: 5 to 50°C (41 to 122°F) *Storage Temperature*: -40 to 66°C (-40 to 151°F)	
Electrical autonomy	4 hours on internal battery	

OCXO quartz Time base	TCXO Quartz time base
High accuracy level Frequency stability 5.10^{-8}/day Temperature range : -20° to 70°C Ageing 5.10^{-10}/day	High accuracy level Frequency stability: 5.10^{-6}/day Temperature range : -30° to 75°C Ageing 5.10^{-9}/day

Protocols supported	ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, TFTP, HTTP, ENDMI, AutoIP, JAVA, NTP, UDP TIME & TCP TIME
Network interface	10Base-T with RJ-45 interface
Management	SNMP, WEB server, Telnet, ENDMI
Upgrade	Possible through a TFTP server
Memory	ROM: 512K, RAM: 128K, EEPROM: 2K

3. Stamp contents

The stamp that identifies the product is localized on the top or on the backside of the product. It contains the following information :

GORGY TIMING

CODE 9213/*optX*

N° SERIE *nnnnnn*

The third line contains the serial number on 6 digits (*nnnnnn*). The second line contains a description of the product:

		ITEM CODE					
		9 2 1 3		/			
ENTREE DE SYNCHRONISATION			↑	↑	↑	↑	↑
TDF (France Inter) receiver signal	■		8	**F**			
DCF 77 (Germany) receiver signal	■		8	**D**			
1 KHz modulated AFNOR NFS 87500/IRIG B input clock	■		8	**8**			
DCLS AFNOR NFS 87500/IRIG B (TTL or RS422)	■		8	**T**			
GPS receiver – TCXO oscillator (Fit with option antenna)	✖		**9**	**N**			
POWER SUPPLY							
230 VAC/50-60Hz	■				0		
115 VAC/50-60Hz	■				1		
18-72 VDC	✖				9		
OPTION GPS ANTENNA							
None	✖					0	
GPS Bullet active antenna 35 dB + 25m of cable	✖					Q	
GPS Bullet active antenna 35 dB + 40m of cable	✖					R	
GPS Bullet active antenna 35 dB + 60m of cable	✖					S	
GPS Bullet active antenna 35 dB + 80m of cable	✖					V	
OUTPUT OF SYNCHRONISATION (*)							
Dry contact alarm in case of absence of input signal or mains cut	■						G
4 Beeps audio 1000 Hz	■						H
AFNOR NFS 87500/IRIG B – 1KHz	■						B
ASCII RS 485 + TOP	■						R
ASCII RS 232 + TOP	■						A
DCLS AFNOR & IRIG B (TTL / RS 422)	■						T
SMPTE-EBU time code (LTC 12M-1999 format) (EBU/UER LTC 3097 format) with GENLOCK/Blackburst input	■						S
Electronic board tropicalized	■						U

For example, the 92138/890A code identifies a LEDI 1/S/RK Enhanced with 18/72V Direct Current power supply, an IRIG-B/AFNOR synchronization input, and an ASCII RS232 +TOP output.

APPENDIX F – ADDITIONAL DOCUMENTS

This appendix contains some documents that can be useful to manage a set of GT products in your installation. Each document is a table that you can freely copy and distribute:

- Installation description: you can use this table to make a synthetic view of all your installation;
- Device configuration: you can use this table to record for each device what is the standard configuration of outputs and display.

Summarized installation view

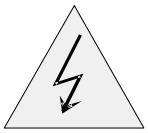
Installation description	
Installation date	
Who has done this installation	

Device description	Serial number	Localization

Devices configuration

Installation description	
Installation date	
Who has done this installation	

Device	Output	Time Zone&DST configuration



WARNING

ISOLATE BEFORE REMOVE COVER

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LA MARQUE DU TEMPS
Quartier Beauregard
38350 La Mure d'Isère (Grenoble France).
Tél : +33 476 30 48 20 Fax : +33 476 30 85 33
e.mail : gorgy@gorgy-timing.fr - www.gorgy-timing.fr

GORGY TIMING SAS au capital de 1 109 067 €

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